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University of Cape Town

Masters in Financial Management

Zimbabwe's Economic Crisis & Hyperinflation

1997 - 2009

Jayson Coomer
CMRJAY001
Supervisor: T. Gstraunthaler

ACC5003W

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“There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction and does it in a manner which not one man in a million can diagnose”

- **John Maynard Keynes (1920) p. 220**

“They had learned then how easy it is to issue it; how difficult it is to check its overissue; how seductively it leads to the absorption of the means of the workingmen and men of small fortunes; how heavily it falls on all those living on fixed incomes, salaries or wages; how securely it creates on the ruins of prosperity of all men of meagre means a class of debauched speculators, the most injurious class that a nation can harbour – more injurious, indeed, than professional criminals whom the law recognises and can throttle; how it stimulates overproduction at first and leaves every industry flaccid afterward; how it breaks down thrift and develops political and social immorality”

- **Andrew Dickson White (1876) p. 52**

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Section I: Introduction

Hyperinflationary episodes have followed many of the great political and social upheavals of the modern world. France underwent the assignat inflation following its Revolution; the American states suffered from it during the War of Independence, and then again during their Civil War; the so-called 'Great Hyperinflations' followed in the aftermath of both World Wars; Bolivia's hyperinflation coincided with the global crisis after the breakdown of the Bretton Woods agreement and the rise of OPEC; the advent of Independence in the former colonies has seen chronic inflation and hyperinflation emerge in Latin America and Africa; the fall of the Soviet Bloc resulted in most of the former communist countries undergoing economic crises culminating in hyperinflation. If anything, the number of hyperinflationary episodes has ballooned in the last three decades. The most recent hyperinflationary episode, and the first of the new millennium, occurred in Zimbabwe.

In 1959, Hazlett (an American) wrote in his forward to White's account of the French Hyperinflation: "Perhaps the study of other great inflations – of John Law's experiments with credit in France between 1716 and 1729; of the history of our own Continental currency between 1775 and 1780; of the Greenbacks of our Civil War; of the great German inflation which culminated in 1923 – would help to underscore and impress [the] lesson. Must we from this appalling and repeated lesson draw once more the despairing conclusion that the only thing man learns from history is that man learns nothing from history? Or have we still time enough, and sense enough, and courage enough, to be guided by these dreadful lessons from the past" (pg. ii). Capie (1991) observes that Hazlett wrote this in 1959: since that time, we have witnessed more cases of rapid inflation than in the entire history of the world prior to that year.

The study of past hyperinflations is necessary, if only because history has shown that it repeats itself. Perhaps Hazlett's lesson will eventually be learned; when the burden of historical experience is so voluminously undeniable that it cannot be avoided. If nothing else, these episodes can give the warning signs: that a populus might prevent its government from embarking on a regime of money creation; or warn income-earners to shift investment and savings into areas that are hedged against inflation.

In the final years of the last millenium, Zimbabwe began to receive a large amount of mainstream media attention due to its concurrent economic and political crises. In the final years of its economic ruin, Zimbabwe entered into a state of hyperinflation, which culminated in a de facto dollarization of the Zimbabwean economy: officialized in early 2009 by the Minister of Finance. These events arose in a time of momentous political action in the form of land reform, whereby nearly all the commercial farming land was expropriated from the largely white community of commercial farmers, and redistributed to the landless black majority (Kairiza, 2009).

In early 2000, encouraged by government promises and the apparent lack of police intervention, hundreds of white-owned farms were invaded and taken over by war

veterans (Chiimba, 2005). These events, coupled with the Zimbabwean Government's fiscal and monetary policies, led to progressively higher rates of inflation.

The focus of this paper will be on Zimbabwe's particular hyperinflationary episode. The crisis has its roots in Zimbabwe's struggle for independence, which took place in the 1970s. This struggle, known as the *Second Chimurenga*, culminated in Zimbabwe's declaration of Independence on April 18, 1980. The incumbent President Mugabe has repeatedly referred to the current period of Zimbabwe's history as the *Third Chimurenga*: the final stage in Zimbabwe's battle against those he terms the "neo-colonialists" (Raftopoulos, 2009).

Given all the hyperinflations of the past, the question to be asked is whether the Zimbabwean experience is an isolated economic novelty; or, rather, is it simply a repetition of the economic and political follies that have plagued some of the fiat governments of the modern world? The purpose of this research, then, is to provide a detailed historical account of the economic side of the crisis, documenting the observable causes and phenomena that accompanied it. This account will then form the basis of a historical analysis of the key features that the Zimbabwean episode shares with other past hyperinflations, in an attempt to draw universal conclusions about the emergence and development of such episodes.

So far, academic literature has provided outlines of previous episodes, studies of their monetary dynamics, and attempts to explain the specific factors that have led to the emergence of hyperinflation. Research has shown that hyperinflation is associated with wars and revolutions. It is associated with weak governments, poor tax systems and external fiscal shocks. It is, above all, associated with accommodative monetary policies. And sometimes, it is associated with ruthless regimes that deliberately set out to ruin a currency, in order to further a political ideal.

In the Zimbabwean episode, as with most historical episodes, we find evidence of nearly all the above. Zimbabwe's ruling party, ZANU-PF, was socialist in all but name. The Zimbabwean public had begun to protest against this pseudo-democracy; resulting in ZANU-PF losing support, as demonstrated by the defeat of its Constitutional Referendum in early 2000. The tax system was unable to cope with the increasing amounts of money required to finance unbudgeted expenditures. Zimbabwe's access to foreign aid dried up fairly quickly once the world began to object to ZANU-PF's unorthodox policies. And in the end, whether intentional or not, the bulk of the economic wealth had been taken away from the white middle class. In all likelihood, Zimbabwe's money creation began as a necessary evil; but as the economic effects began to be felt, the government awoke to the potential of the tool it wielded, and hyperinflation became policy.

The paper begins with a detailed literature review on hyperinflation. The definition of hyperinflation is discussed, alongside the difficulty that past authors have encountered in determining an absolute rate of inflation that would classify an episode as hyperinflationary. This is followed by a review of the past literature that deals with

hyperinflation, and the relationship between inflation and budget deficits. More specifically, the section will deal with how inflation functions as a form of taxation.

In the subsequent section, the paper will address the methodology employed in preparing the historical account, as well as that relating to the historical comparison of Section V.

In Section IV, the historical account is presented; and in Section V, the key features of the Zimbabwean episode are identified, and then individually compared to past experiences in order to determine a common pattern. The paper then concludes in Section VI.

University of Cape Town

Section II: Background and Literature Review

Background

Since America severed its link with gold in the 1970s, the world has operated on fiat money. And in that time, inflation has blossomed, often at rates above 100 per cent per annum. Siklos (2000) points out that inflation is largely a phenomenon of the 20th century; and, in particular, of the post World War II decades. Hyperinflation, however, was first recorded during China's Sung Dynasty in the 11th and 12th centuries¹; and the highest hyperinflation on record is the second Hungarian hyperinflation, which occurred just after World War II.

Capie (1986) observes that only paper currency allows a sufficient expansion in the money supply and/or a sufficient rise in the velocity of circulation to permit a rapid rise in prices. The rareness of paper money prior to the twentieth century explains the rare occurrence of rapid inflation episodes in this era. Today, the world is no longer reliant on the physical printing press. With the advent of electronic and virtual funds, money supply injections are no longer dependent upon the paper and ink of previous decades: creating money can take as long as it does to type the number into a bank's accounting system. Furthermore, in the age of the internet, information (and misinformation) are immediate; and given the right audience, such information will rapidly fire the hysteria that will hype the velocity of circulation.

Defining Hyperinflation

Inflation is broadly defined as the increase in the cost of living, generally measured in terms of a consumer price index (CPI) (Siklos P. L., 2000). Hyperinflation can be simplistically defined as an extreme form of inflation.

Cagan (1956) defines *hyperinflation* as "beginning in the month the rise in prices exceeds 50 per cent and as ending in the month before the monthly rise in prices drops below that amount and stays below for at least a year" (p. 25). The author does admit that the definition is arbitrary; but given the seminal status of his work, it is still the definition first quoted in the available literature.

Capie (1986), when discussing the historical occurrence of hyperinflation, relaxes the definition to include episodes occurring "when price rises reach an annual rate of [...] 100 per cent in any one year" (p. 117), calling them 'very high inflation episodes'. In their article on modern experiences of hyperinflation, Fischer *et al.* (2002) also use this rate of 100% per annum to distinguish between high and extraordinary inflation experiences. Apart from finding support for this decision in the literature, it is also noted that inflations in this range are so disruptive in practice that few countries have been

¹ Although the hyperinflation in the Sung dynasty did not reach the 50 percent per month threshold defined by Cagan (1956), it did exhibit the characteristics of a Cagan-type hyperinflation; and is notable given that it is the first recorded paper-money inflation in history (Lui, F. T. (1983). Cagan's Hypothesis and the First Nationwide Inflation of Paper Money in World History. *Journal of Political Economy*, Vol. 91, No. 6, 1067-1074).

willing to live with them for more than a few years. An important observation here is that the use of such a definition automatically defines inflation episodes as lasting for a minimum time period of 12 months. Whilst Cagan (1956) does not specify minimum time period for hyperinflationary episodes, none of the seven he examined lasted less than ten months (Fischer, Sahay, & Végh, 2002). In contrast, modern episodes, such as the Zimbabwean Hyperinflation, usually last much longer than Cagan's ten months.

After the relative notoriety of hyperinflation that followed World War II, Végh (1992) observes that a less dramatic, but equally worrying, phenomenon began to emerge: chronic inflation. Pazos (1972) states that chronic inflation is characterised by two key features:

1. It lasts for long periods of time, and is generally measured in years; as compared to months in the case of hyperinflations.
2. It has an "intermediate intensity" (less than hyperinflation, but higher than moderate inflation), which is explained by the public adapting to life with high and persistent inflation through the use of various mechanisms indexed to inflation. Importantly, chronic inflation rates tend to remain constant, while hyperinflation rates tend to oscillate before accelerating sharply in the final few months of the episode.

Chronic inflation is relevant to the analysis of hyperinflation, as the current literature differentiates between two types of hyperinflationary episode: firstly, what Kiguel and Liviatan (1992) term 'classical hyperinflations'; and secondly, hyperinflation episodes that arise after long periods of chronic inflation.

With regard to classical inflations (which include the great inflations of the 1920s and 1940s, as well as the Bolivian hyperinflation), Kiguel and Liviatan (1992) note that their most distinctive feature is that "they had clear origins (large budget deficits financed by money creation), and that they were stopped suddenly, by an orthodox program that addressed the fiscal imbalance, and convinced the public that the central bank would not print money to finance the budget deficit" (p. 7). This observation echoed the general view of Sargent (1982), that hyperinflations can only be ended by credible changes in fiscal and monetary policy. Kiguel and Liviatan (1982) go on to clarify that the reasons for these budget deficits were clear, and generally resulted from unusual circumstances. In the 1920s, the costs of reconstruction and the war reparation payments in the losing countries led to the deficits (Cagan, 1956); and in Bolivia, the sudden halt in the country's access to external financing meant that it could not service its external obligations (Sachs, 1987). Kiguel and Liviatan (1982) further note that it is important to keep in mind that the classical hyperinflations occurred in countries where high inflation was an exception rather than the rule. Finally, they state: "the success in stopping hyperinflation did not require balancing the budget on a longer term basis, though it was necessary to signal unequivocally that the central bank would not issue money to finance the deficit" (p. 13).

With regard to some of the more recent hyperinflations that took place in Latin America, Kiguel and Liviatan (1992) identify that these episodes took place in "countries with a long tradition of high inflation"; a history rooted in "large budget deficits and the continuous growth of the public sector" (p. 16). Reinhart and Savastano (2003) also

observe that many modern episodes are preceded by years of chronic inflation, which eventually degenerates into hyperinflation.

The Hyperinflationary Process

Bernholz (1993) summarises the hyperinflationary process as follows: “the public restricts more and more its use of the inflating currency. First, money is no longer used as a unit of account. Moreover, the decreasing real stock of money leads to liquidity problems and furthers the substitution of the national currency by foreign currencies or by other stable stores of value. As a consequence, the real revenue received by the government from the inflation tax decreases more and more. At the same time, normal revenue from ordinary taxes diminishes because of the misallocation of resources resulting from inflation and because of the time lag between declaration of taxes and their expenditure. Since the population has meanwhile learned about the mechanisms of inflation, any expansionary effect of increasing rates of inflation is limited”.

In the body of his work, Bernholz (1988, 1990, 1993) also identifies the following general characteristics of hyperinflationary episodes:

1. When the inflation begins, the real stock of money increases .
2. If the country permits a more expansionary/accommodative monetary policy than its principal trading partners, the corresponding exchange rates rise more strongly and quickly than the relative price level (under a flexible exchange rate regime). The currency becomes undervalued, and purchasing power parity does not hold. In countries with fixed exchange rate regimes, an overvaluation will develop.
3. When inflation has persisted for some time and continues to further accelerate, the real stock of domestic money begins to fall. In the last phase of hyperinflation, it reaches a level far below the normal stock of the time before inflation.
4. Apart from a higher velocity of the inflating money, substitution takes place for a more value-stable currency.
5. The price level rises more strongly than exchange rates during the final months of hyperinflation. Undervaluation diminishes as the system moves towards purchasing power parity. The same development can take place if money supply growth relative to the corresponding trading partner ceases.
6. When a country enters into hyperinflation, the real budget deficit increases.
7. “The consolidated budget deficit of all government agencies including state-owned firms, amounts to a high fraction of total government expenditures and is mainly financed by money creation”.
8. The inflation itself causes a substantial part of the deficit, due to time lags in tax collection, as well as time lags between collection and spending.
9. The government and the central bank lose all credibility with the population.

The Branches of Academic Literature on Hyperinflation

According to Siklos (2000), most academics agree on the role of monetary factors in explaining all reported episodes of hyperinflation: governments, unable to source revenues via conventional taxation, suspend all limits on borrowing from the central

bank. The printing press then becomes the primary source of the fiscal authorities' need for revenues. As inflation spirals, the fiscal authorities (by this point in effective control of the monetary authorities) must stay ahead of inflation and, particularly, of inflationary expectations, in order to maintain the real value of revenue.

In the same way, Siklos (2000) agrees with Sargent (1982) on the solution to hyperinflation: "a fiscal policy which respects a budget constraint without resort to excessive monetary expansion", alongside a monetary authority with sufficient autonomy to resist pressures to finance a government's budget, provided that "the newly implemented policies are perceived by the public to be credible ones" (p. 10).

When hyperinflations first became a topic of academic and political discussion after the end of the First World War (and the five great hyperinflations that followed it in Germany, Austria, Poland, Hungary and the Soviet Union), the discussion centred on the question of whether hyperinflation was caused by monetary expansion, or by an imbalance in the balance of payments (Fischer, Sahay, & Végh, 2002). The balance of payments view put particular emphasis on the assumed exogenous behaviour of the exchange rate: Bresciani-Turroni (1937) states that this was the view held throughout the German hyperinflation by the Reichsbank, bankers, industrialists, much of the press and most German economists.

In his pioneering article of 1956, Cagan examined the hyperinflation process within a monetary framework, under conditions of adaptive expectations. Siklos (1990) states that the objective of Cagan's (1956) classic study was to "demonstrate a stable demand for money function even under the severe strain of a monetary policy based almost exclusively on generating inflation". Since that time, the academic world has generally agreed with the famous observation of Milton Friedman (1963): that "...inflation is always and everywhere a monetary phenomenon". Since Cagan (1956), a large section of the literature has dealt with the monetary dynamics of hyperinflation: focusing on Cagan's assumption of adaptive expectations, evaluating it in the light of the theory of rational expectations; and testing his various assumptions empirically using data from various hyperinflationary episodes.

A second branch of the literature views inflation as a tax on the public, shifting the emphasis from monetary to fiscal factors as being the root cause of hyperinflations. Lerner (1955) observes that once prices begin to rise, they become, in effect, "a tax on holding money"; the public then spends its money more rapidly in order to avoid the tax, driving up prices still higher. This is further complicated by the so-called Keynes-Tanzi effect, whereby lags in tax collection in the presence of high inflation causes the real value of government tax revenues to be eroded.

A third section of the literature focuses on the stabilization process, and the various economic costs associated with it. In his famous article analysing the ends of four major hyperinflations, Sargent (1982) concludes that a credible change in policies, "preferably embedded in legal and institutional changes" (p. 8), can permit an essentially zero cost end to a hyperinflation (Fischer, Sahay, & Végh, 2002). A great deal of argument has been generated by Sargent's paper, particularly in the discussion of the long-term effects of zero-cost stabilizations on employment.

Finally, and closely linked to Sargent's (1982) credible change in policies, the use of game theory in the approach to economic policy has allowed researchers to analyse the concept of credibility (Persson and Tabellini, 1990).

However, of most relevance to this paper is the fiscal role of inflation. While it is not disputed that inflation is a result of money creation, and is therefore a monetary phenomenon; the underlying cause for money creation itself is the need to finance a fiscal deficit.

Budget Deficits and Inflation

Government revenues must cover government spending, which is generally in the form of direct taxes on the public, as well as revenue streams from public enterprises. When government spending exceeds revenue inflows, a budget deficit arises; which must be financed. Fischer and Easterly (1990) identify the four ways of financing the public sector deficit: "by printing money, running down foreign exchange reserves, borrowing abroad, and borrowing domestically". The financing can be expressed as:

$\text{BUDGET DEFICIT} = \text{MONEY PRINTING} + (\text{FOREIGN RESERVE USE} - \text{FOREIGN BORROWING}) + \text{DOMESTIC BORROWING}$

They define the public sector in this case to exclude the central bank, whose profits from the printing of money are treated as a source of financing. They also observe the economic problems that can arise from each financing method: printing money can lead to inflation; the use of foreign reserves can lead to exchange rate crises; foreign borrowing can result in an external debt crisis; and domestic borrowing often leads to higher real interest rates and, conceivably, "explosive debt dynamics as borrowing leads to higher interest charges on the debt and a larger deficit" (p. 131).

1. *Printing Money*

Seigniorage revenue is collected as a government spends the notes that it prints. The resulting inflation effectively imposes a tax on cash balances through the consequent depreciation of the currency (Cagan, 1956).

Given a stable demand for money, inflation will result when a certain rate of growth in the money supply is exceeded. When the supply of money exceeds the demand for it, the public is left holding excess cash balances at the current price level. As the public attempts to reduce its excess cash holdings, the excess demand will drive up the overall price level until a new equilibrium is achieved (Fischer & Easterly, 1990). The authors further note that the cause and effect of this process is not necessarily immediate: in a low inflation economy, for example, increasing the stock of real money may initially reduce interest rates, as the public saves its excess cash holdings.

However, once inflation begins to rise, the demand for high-powered money will decline: that is, as money loses its function as a store of value, the public will look to preserve their real cash balances in an alternate form; by investing in assets, or by using cash as soon as it is received (thereby further driving up the price level). Eventually, the government's revenue from seigniorage reaches a

maximum. After this hypothetical equilibrium point, an increase in the money supply growth rate will lead to more inflation and less revenue, as empirically observed by Cagan (1972).

Fischer (1982) notes that historically, the average rate of seigniorage revenue is about 1% of GNP in developed countries, and less than 2.5% of GNP in developing countries. The inflation rate for maximising seigniorage revenue, however, is a topic of debate. As stated previously, Capie (1986) classifies a high inflation episode as one where the annual rate of inflation exceeds 100 percent per annum; he justifies this figure using Cagan's 1972 paper. Cagan (1972) argued that note issuers (i.e. governments and/or central banks) should seek to maximise revenue gained from seigniorage; and that, in the case of the seven hyperinflations he examined, maximum constant revenue was reached when the inflation rates exceeded 100 per cent per annum. According to Capie (1986), there is some disagreement with this figure, and Cagan himself has pointed out that an estimation of the money-demand function is required in order to measure the maximum revenue. However, difficulties arise in making such estimation because the money supply is endogenous, and any estimate will therefore be unreliable (Capie F., 1986).

Fischer and Easterly (1990) also state that estimates for this revenue-maximising inflation rate can range from 30% to 100%; but they indicate that the lags in the process of adaptation of money demand to inflation make these estimates unreliable. "In the very short run of a few days or weeks, the government can almost always increase its revenue by printing money more rapidly" (p. 132). But as the process of high inflation persists, so the demand for real balances at any given inflation rate declines more quickly; as the public finds other ways of transacting that still permits a store of value, especially by using foreign currencies.

When this happens, the monetary authorities are forced to print money more rapidly in order to obtain the same revenue in real terms. In extreme cases, reliance on seigniorage revenue to finance the deficit can lead to episodes of hyperinflation (Fischer & Easterly, 1990).

2. *Using Foreign Exchange Reserves*

Running down reserves instead of printing money, allows the fiscal authority to put off (at least temporarily) the inflationary effects of a deficit. Selling reserves to purchase local currency leads to an appreciation of the exchange rate. However, slowing inflation by slowing the rate of the currency's depreciation (which can also be carried out by increasing foreign borrowings) cannot be maintained indefinitely. Inevitably, prolonged use of foreign exchange reserves renders a government susceptible to speculative attacks on the currency, which leave the reserves fully exhausted and cause a balance of payments crisis (Krugman, 1979). Fischer and Easterly (1990) observe that the use of foreign reserves cannot be maintained unless current fiscal policies (the underlying cause of the deficit) are made compatible with the lower inflation rate achieved.

3. *Foreign Borrowing*

Foreign borrowing is a resource that is often unavailable to countries experiencing persistent budget deficits: due to past over-borrowing, and the possible perception that the country is not creditworthy. Foreign borrowing is a temporary respite for budget deficits, and is usually accompanied by onerous commitments to fiscal reform. Fischer & Easterly (1990) observe that in the cases of some debtor countries, reductions in the availability of external financing will result in either fiscal contraction, or inflation as the country is forced to seek alternate sources of financing.

4. *Domestic Borrowing*

Domestic borrowing, when a government borrows from the public by the issue of bonds and treasury bills, can lead to credit-rationing, as well as the crowding out of private sector investment (Akçay, Alper, & Özmucur, 1996).

Also, given that there must be a market for the government debt (i.e. there must be sufficient lenders), Fischer and Easterly (1990) observe that this is not always a source of finance available to governments of developing countries, which lack the formal infrastructure and market sophistication for the supply of government debt. And even when such a market is available, once the government's fiscal policy is recognised as being unsustainable, the public will cease buying government debt, thereby forcing a change in policy.

As much literature has pointed out, inflation can be seen as a form of tax. This makes it, perhaps, the most dangerous of the *de facto* forms of taxation, because it is "the easiest to levy, the quickest to materialize, and the hardest to evade" (Hamilton E. J., 1977). In countries with large budget deficits, the allure of inflationary finance is sometimes too strong for the authorities to resist, particularly when the all other forms of financing have been exhausted without any accompanying fiscal reform.

Fischer & Easterly (1990) observe that budget deficits tend to cause inflation, and, at some point, countries with large budget deficits are likely to be confronted with extremely high rates of inflation. All the great hyperinflations have been accompanied by huge budget deficits, with inflation and the deficit undergoing a mutual feedback process through the Keynes-Olivera-Tanzi effect (as higher inflation reduces tax revenue due to time lags in collection) and through decreasing seigniorage revenue (as higher inflation causes "a flight from money").

Fischer *et al.* (2002) find that the relationship between fiscal deficits and inflation is only strong in high inflation countries (or in countries experiencing high inflation episodes). They also affirm the 'basic tenet of monetary economics': that money growth and inflation are strongly correlated in the long run. As to the question of causation, they find that "causation (in the Granger sense) runs from exchange rate changes and inflation to money growth" (p. 15). The result is interpreted as an indication that once inflation has been triggered, monetary policy tends to be accommodative, thereby allowing inflation "to be driven by temporary shocks and by its own dynamics (i.e. inflation persistence)". As to what triggers inflation initially, they find that "fiscal deficits indeed explain high inflation using standard regression techniques" (p. 16).

This conclusion was identified intuitively by Siklos (2000), who observed that the causal link between fiscal deficits and inflation arises when a government's excessive borrowing (either domestically or abroad) limits its ability to borrow without resorting to printing money. In the extreme case, a government may be unable to generate revenues other than through seigniorage: this reliance on seigniorage revenue is a common factor in the hyperinflations of history.

Cagan (1956) empirically tested his theories on the monetary dynamics of hyperinflation, using data from seven of the Great Hyperinflations². He observed the following fiscal commonalities:

1. Printing money was a convenient way to provide the governments with real resources; and
2. The effectiveness of this method declined over time, and so required ever larger issues.

He explains that the governments during these episodes were “too weak to enact adequate tax programs and to administer them effectively”. The authorities therefore resorted to “a tax on cash balances”, which does not require detailed legislation, nor is it difficult to administer. The tax on cash balances is the definition of seigniorage revenue: the real value of new money issued per time period (less the costs to print/create it) plus the reduction in the real value of outstanding monetary liabilities (Cagan, 1956).

An important point to note is that Cagan was observing hyperinflations where money creation meant the printing of physical money. Today, the majority of money creation can be electronic: this implies that money creation is no longer limited by the physical constraints of time and materials. Money creation today can be instant: a fact quite crucially observed in the more recent hyperinflationary episodes.

When the tax is first imposed, the delayed adjustment in cash balances held by the public (due to the lag in expectations) will mean that there is no maximum yield for the tax: the higher the rate of money creation, the higher the seigniorage revenue (Cagan, 1956). However, as the public adjusts its cash balances, and inflation increases, the real value of other tax collections will decrease. Cagan (1956) observes: “during the later stages of hyperinflation, these funds must have become nearly worthless owing to delays in collecting them” (p. 85). At that point, the only recourse for the fiscal authorities to obtain necessary funds immediately is to increase the tax on cash balances. As the rate of money creation accelerates, it soon reaches such heights that “the monetary system verges on chaos”, and “a return to orthodox taxing methods becomes an economic and political necessity” (p. 86).

Bernholz (1989) further points out that a government cannot permanently maintain a real budget deficit. If it is not reduced, the inflating currency will eventually be substituted by ‘good money’ (such as foreign currency, or an alternate store of value), thereby eroding the base of the inflation tax. The government will thus lose all forms of

² Cagan (1956) used data from the five hyperinflations that followed World War I (Germany, Austria, Poland, Hungary I and the Soviet Union), and two of the hyperinflations that followed World War II (Greece and Hungary II). The only Great Hyperinflation not to be included in his study was that of China, which ended in 1949.

alternate financing, and will be forced to return to Cagan's (1956) "orthodox taxing methods".

However, governments that are either unable, or unwilling, to reduce the real budget deficit will attempt to preserve the inflation tax base: "by making the bad money legal tender, forcing its use on the public, prohibiting the use of the old money and introducing exchange controls" (Bernholz P. , 1989). This will only prolong and heighten the inflation, until the public itself forces a fiscal change; either by removing the original government, or by ignoring the laws attempting to preserve the inflation tax base.

As Garber and Spencer (1994) conclude, the emergence of hyperinflation can only be prevented by sound fiscal and monetary policies. Furthermore, in a fiat money regime, the money stock can only be backed by an appropriate fiscal policy (Capie F. H., 1991). Smith (1984) explains this process by likening the value of a government's liabilities to the shares of a listed company. If a company issues more shares without the prospect of an increase in the future stream of income, there will be a fall in the price of shares. In the same way, if a government increases its liabilities (notes) without an increase in prospective tax receipts, the expectation is created that the value of the liabilities (notes) will fall – that is, inflation will occur.

Sargent (1982) holds that people expect high rates of inflation in the future as a direct result of the government's current and prospective monetary and fiscal policies. He goes on to say that the current rate of inflation, and the public's perception of future rates of inflation, will respond slowly to "isolated *actions* of restrictive monetary and fiscal policy", if these are seen as only temporary departures from what is considered to be "a long-term government *policy* involving high average rates of government deficits and monetary expansion in the future". He concludes that inflation only appears to have its own momentum; whereas it rather receives its momentum from the long-term government policy of persistently running large deficits and financing these at high rates of money creation.

Section III: Methodology

Data Sources for the Historical Account

Due to the chaos and uncertainty that accompanied the crisis, reliable data on the Zimbabwean episode is unavailable. However, the account makes use of a number of authoritative sources, including the IMF and the United Nations. Where these sources were unavailable, or did not provide relevant information, reliance was placed on articles published in the popular press, and news issuances from the Reserve Bank of Zimbabwe. Whilst the unreliability of these sources is acknowledged,

Until 2006, the IMF held yearly Article IV Consultation meetings with members of Zimbabwe's government and representatives from the Reserve Bank of Zimbabwe (RBZ). Annual reports of these meetings were published, in which the economic background of the country, as well as the specific economic developments for the year under review, were disclosed and discussed with regard to their policy implications. However, a country has the right to veto the IMF report on an Article IV Consultation meeting. In December 2006, an Article IV Consultation meeting took place; after which Zimbabwe presumably exercised its right to veto the report, as no report was issued. The Article IV Consultation meetings subsequently ceased, and then recommenced in March 2009; with the IMF releasing a report on the talks in May 2009.

With regard to the years for which an Article IV staff report was released, the IMF publication forms the basis of the historical account. For the interim period of 2006 through to 2008, greater reliance was placed on the weekly economic bulletins issued by the RBZ, and articles in the popular press. The account for these periods was supported, wherever possible, by references to academic literature covering the crisis.

Financial data for the crisis are unreliable, due to time lags in the collection of the information by the RBZ, as well as the underground nature of financial transactions at the time. The parallel exchange rate movements are often used as a proxy for inflation, as most goods came to be denominated in foreign currency. Unfortunately, there are no official data for the parallel exchange rate. There are some Zimbabwean economists and news sources that maintained a running quote of the parallel rate; but these are unconfirmed, difficult to obtain, and often have large discrepancies when compared.

However, with regard to the parallel rate, the United Nations publishes its own official rate that it uses in its projects. Normally, these rates are set for a period, and then subsequently revised. The rates given in Table 6 (pg 38) are taken from the UN website, and are adjusted to reflect the rate at the old Zimbabwean dollar (i.e. the removal of zeros by the RBZ is ignored). In January 2009, the UN was continuing to quote an exchange rate of some 350 nonillion Zimbabwe dollars to one US dollar (old Zimbabwe dollars), but by this point, the Zimbabwe dollar had effectively ceased to function.

The official inflation rate came under a great deal of scrutiny in the latter parts of the hyperinflation; as almost 70 percent of the basket was publicly administered under price control measures as of mid-November 2002 (IMF Staff Report, 2003). However,

the purpose of this paper is not to dispute the inflation rates quoted by the IMF: the rates quoted herein are as quoted in the statistical appendices published by the Fund.

Comparison to Past Hyperinflations

In preparing a frame of reference for the historical comparison, certain key authors were identified. As a primary guideline, I have used Forrest Capie's 1986 paper. Capie presents a brief summation of the origins of nearly all the major hyperinflationary episodes that had occurred prior to the Bolivian experience, analysing each episode individually. Capie then summarises the key characteristics observed in all these cases; and concludes by relating his observations to the Latin America hyperinflationary situations that were emerging at the time of his writing.

In this paper, it is beyond the scope of the research to perform a thorough analysis of all the hyperinflationary episodes that have occurred prior to the Zimbabwean episode. Rather, I have chosen to use an inductive analysis process: identifying the key characteristics of the Zimbabwean episode, and then comparing these findings to literature already in existence. The induction is intended to establish support for the classification of a characteristic, specific to a particular episode, as a universal feature of the hyperinflationary process.

Therefore, the comparison begins with an evaluation of the Zimbabwean experience. This evaluation sets out to identify the key characteristics of the circumstances that led to the Zimbabwean experience. The evaluation then extends to the key characteristics of the Zimbabwean hyperinflationary process itself: identifying the particular phenomena that emerged as a result of the inter-reactions of the Zimbabwean monetary authorities and the free-market forces of the Zimbabwean economy.

Once these have been identified, the paper then analyses academic accounts of other episodes, in the search for similar key events and characteristics occurring in these other historic hyperinflations. In this way, we can determine whether the Zimbabwean experience follows a pattern that has emerged previously; or if it is a unique economic event.

The approach is similar to one used by Sachs in his 1987 paper on the Bolivian hyperinflation: where, although there is no detailed support for his observations from previous episodes, he does interpret the phenomena he identifies in the light of findings by other authors.

Section IV: The Zimbabwean Hyperinflation

The Beginning of a Crisis (1997-2000)

In the second decade of its independence, the Zimbabwean Government began attempts at economic reform. In 1991, it launched an economic reform program that was “instrumental in liberalizing the economy and addressing structural impediments to growth” (IMF Staff Report, 2000). However, according to the IMF, fiscal policy was weak and monetary policy unsteady during the time period; and the country suffered from two serious droughts (in 1992 and 1995), which affected Zimbabwe’s primary economic industry: agriculture (IMF Staff Report, 2000).

The IMF mission also observed that land reform had been a highly contentious issue since independence, as the majority of prime agricultural land was owned by about 4,000 white commercial farmers; while the indigenous population continued to engage in subsistence farming. Chiimba (2005) also observes that “throughout the 1980s and ‘90s the [Zimbabwean] government continued to struggle with the issue of land reform, [as] some 4,000 white farmers collectively controlled about one-third of Zimbabwe’s arable land”.

In the first five years of Independence, land resettlement was conducted under government’s “first option to buy” at market prices: resulting in resettlement on some 3 million hectares. “Subsequently, the 1992 Land Acquisition Act provided for compulsory purchase of farms, as long as the property was derelict, located on underutilized land, owned by absentee landlords, or surrounded by communal areas, and the owner had multiple farms. The act required fair compensation and provided a right of appeal”(IMF Staff Report, 2000).

In the second half of 1997, under mounting political pressure, the ZANU-PF Government announced a new compensation and pension plan for war veterans of the Independence struggle. The payouts applied to approximately 60,000 war veterans: each of whom were to receive an immediate compensatory payment of ZWD50,000 (the equivalent of USD3,000 at the time), alongside a monthly pension equivalent to USD125 (Chitiyo, 2000). The total package amounted to approximately 3 per cent of the 1997 GDP; and was not included in the 1997 Budget for the fiscal year. Kairiza (2009) notes that the payments had the immediate effect of inflating the budget by 55 per cent on the previous year.

The following month, Zimbabwe’s standing line of credit with the World Bank was suspended until “the government had demonstrated that the payments would not result in a higher than the projected 8.9 percent budget deficit in the 18 months leading to December 1998” (Kairiza, 2009).

Following on from the new gratuity package, the war veterans expressed discontent with the success of the previous land reform program, and began to press for its acceleration. In November 1997, President Mugabe responded to these pressures,

announcing plans for the compulsory acquisition of white-owned commercial farms, “again without elaboration on the financing side of the transaction” (Kairiza, 2009). 1,471 commercial farms, representing a significant portion of Zimbabwe’s commercial farming land, were gazetted for compulsory purchase. The announcement as met with strong opposition from owners (IMF Staff Report, 2000).

The lack of budgeted financing for both the gratuitous payment packages and the land acquisition process created investor panic around the future fiscal position of the Zimbabwean Government. The resulting flight of foreign capital caused crashes in the Zimbabwean money and capital markets, as well as exhausting the foreign reserves of the Reserve Bank of Zimbabwe (RBZ) (Kairiza, 2009). This culminated in the crash of the Zimbabwe Dollar on 14 November 1997, a day referred to as ‘Black Friday’ by Zimbabweans, when the Zimbabwean dollar lost 75 percent of its value against the US dollar (USD) (Raftopoulos, 2009).

At the time, it was government’s intention to finance the scheme through tax increases in the 1998 budget; but the widespread protests of January 1998, organised by the Zimbabwe Congress of Trade Unions (ZCTU), resulted in a reversal of this policy when the government was forced to monetise the debt (Amani Trust, 1998). The food riots erupted in response to the steep rise in the cost of mealie meal, paralysing the country for two days (Raftopoulos, 2009). In response to the public pressure, the government introduced price controls, accusing Zimbabwe’s industries of “profiteering” (Kairiza, 2009).

Then in September 1998, even as economic conditions continued to worsen, the President sent 11,000 troops to the Democratic Republic of Congo (DRC) to back the discredited leader, Laurent Kabila; who was facing a civil rebellion backed by Rwanda and Uganda (Kairiza, 2009). The military move was unbudgeted.

At the same time, the government continued its land reform process, issuing acquisition orders in November 1998 to 841 farmers who had contested the 1997 compulsory purchases. The state also reacted to the growing influence of the trade and labour unions by imposing the Presidential Powers (Temporary Measures) Labour Regulations of 1998; which imposed heavy penalties on trade unions and employers that “incited or facilitated strikes, stay-aways, and other forms of unlawful collective action” (Raftopoulos, 2009).

In early 1999, the government’s increasingly controversial activities caused foreign donors to begin scaling back their assistance (IMF Staff Report, 2000), with both the World Bank and the IMF suspending aid (TIMELINE: Chronology of Zimbabwe’s Economic Crisis, 2007). The pressure on the Zimbabwean dollar continued to build as Zimbabwe’s foreign reserves dropped to dangerously low levels. In response, the RBZ reintroduced widespread import controls and banned foreign currency accounts (FCAs) (Kairiza, 2009). The banning of the FCAs effectively meant that the RBZ was authorised to retain all export proceeds.

The Reserve Bank’s monetary policy remained relatively accommodative during the first half of 1999. However, as inflationary pressures began to intensify, the RBZ began to

tighten liquidity: and in July, it doubled reserve requirements to 30 percent. In the 12 months ended August 1999, reserve money growth, which had peaked at 96 percent, slowed to 61 percent by year's end. At the same time, while deposit rates on savings remained negative, treasury bill yields and bank lending rates soared in real terms (to 17 percent). Broad money growth, however, stood at 30 percent for the year (IMF Staff Report, 2000).

In response to the economic pressures, the government reached an agreement with the IMF for the initiation of an economic recovery program, supported by the 1998 Stand-By Arrangement. The program aimed to achieve a decline in inflation to 30 percent by the end of 1999 (from the 47 percent level in 1998), real GDP growth of 1.2 percent, and a US\$160 million gain in net official international reserves. This adjustment in fiscal policy was to be supported by tight monetary policy and confidence-building measures, including aligning the land reform process to the strategy agreed upon during the 1998 international conference; disclosure of the cost of Zimbabwe's involvement in the DRC conflict; a rollback of emergency trade and capital controls; and an acceleration of the privatisation of state-owned public companies. The program was also supported by the 1999 Stand-By Arrangement, in terms of which the authorities committed themselves to implementing several structural reforms, including "a phased liberalization of foreign currency accounts" (IMF Staff Report, 2000).

However, action under the program was weak, and inflation continued to rise to a peak of 70 percent in October, before easing to 57 percent by end-1999. Real GDP also fell by 0.2 percent as a 7 percent decline in manufacturing output more than offset gains in agriculture and tourism. Net international reserves had increased by US\$314 million in 1999, but pledging and collateralization of foreign assets had left usable reserves practically depleted. The government's primary balance moved to a deficit of 1½ percent in 1999 from a surplus of 5 percent of GDP in 1998. The fall was driven by unbudgeted wage and defence expenditures, as well as poor revenue collection. Domestic borrowings had also risen sharply, exacerbated by the withdrawal of foreign aid, leading to a surge in domestic interest payments. As a result, the overall deficit widened from 4½ percent of GDP to 11½ percent; and the operational balance (the overall deficit corrected the eroding effects of inflation on domestic debt through accelerated amortization) shifted from a surplus of 2½ percent to a deficit of 4 percent (IMF Staff Report, 2000).

According to IMF Staff Reports (2000), "the spillover to the external sector of lax domestic policies and investor scepticism was compounded by the de facto pegging of the currency from January 1999 onward" (p. 10). 1999 was characterised by increasing shortages of essential imports, and time delays for private sector foreign exchange payments developed. A parallel market spread began to emerge, and the public sector started to accumulate external arrears that totalled about US\$110 million by the end of the year (IMF Staff Report, 2000).

On the political front, the central debate was around the constitution. The National Constitution Assembly (NCA), together with ZCTU and other opposition factions, officially formed the Movement for Democratic Change (MDC) in September 1999. The

political focus shifted towards the February 2000 Constitutional Referendum (Raftopoulos, 2009); with the MDC opposing the newly drafted constitution. Both the MDC and the NCA were strongly supported by the white commercial farmers; who, faced with growing threats on their land, and the breakdown of their previous consultative arrangements with the ruling party, had begun to involve themselves in the new opposition political developments (Raftopoulos, 2009).

In summation, by the turn of the millennium, Zimbabwe's economic situation had become precarious. As a result of unbudgeted expenditures, the fiscal deficit was increasing. As a result of its political positions, the country had lost access to international aid. And as a result of decreased investor confidence alongside a fixed exchange rate regime, foreign reserves had been effectively depleted by RBZ attempts to prop up the currency. The monetary and fiscal authorities had already begun to use the printing press to finance the deficit, initiating Zimbabwe's run toward hyperinflation.

The Redistribution of Land (2000 – 2003)

On 12/13 February 2000, the Constitutional Referendum proposed by the ZANU-PF was held. Within the week, the draft constitution was rejected, thanks in large part to the efforts of the commercial farmers (Raftopoulos, 2009). Only days later, war veterans retaliated against the “white settlers”, beginning a string of violent farm invasions (IMF Staff Report, 2003). An estimated 1,600 farms were occupied. In April, parliamentary approval was given to a constitutional amendment permitting compulsory acquisitions of land; and the amendment was formally incorporated into the Land Acquisition Act in the following month (IMF Staff Report, 2000).

In June 2000, parliamentary elections were held, in which MDC won 57 of the 120 seats at stake (IMF Staff Report, 2003). In the same month, a fast-track resettlement program was announced by government, “covering 5 million hectares and 150,000 families in 2000, compared with the 3.3 million hectares and 73,000 families resettled since independence” (IMF Staff Report, 2000, p. 11). In the process, the state gazetted 2,455 farms for acquisition. In terms of the announcement, the government would provide compensation for any capital improvements to the land, but not for the land itself (IMF Staff Report, 2000).

In an attempt to prop up its foreign reserves, the RBZ began to enforce exchange controls on exporters. From May onwards, most exporters were required to sell 25 percent of their proceeds, which the RBZ would earmark for imports of fuel, electricity and other priority energy supplies. Tobacco exporters, however, were required to sell 75% of their receipts, in proportions specified by the RBZ, to the state oil and power companies, to the RBZ (for exclusive use for debt-service payments), and to the tobacco growers’ association (ZTA) to finance imports of raw materials (IMF Staff Report, 2000).

During the first nine months of 2000, the deficit remained at an annualized 18 percent of GDP. In early September, parliament passed a supplementary budget, which authorized additional expenditures, principally for defence, which widened the deficit to 23 percent of GDP (IMF Staff Report, 2000). Despite the capping on interest rates in August, the government’s domestic interest bill rose to 17 percent of GDP (IMF Staff Report, 2000).

The 23 percent deficit was mainly due to large, unbudgeted increases in civil service wages in the run-up to parliamentary elections in June 2000; a sharp increase in military spending, as a result of Zimbabwe’s ongoing involvement in the DRC conflict; and a rise in government interest payments to almost 17 percent of GDP, despite the capping of interest rates in August 2000 (IMF Staff Report, 2001).

On the monetary policy side, the RBZ had attempted to contain monetary expansion during the first seven months of the year by borrowing domestically. This policy continued to crowd out the private sector, as the government’s borrowing requirement continued to rise. In August the RBZ eased monetary conditions by “capping its benchmark bank rate at 2 – 2.5 percentage points above the most recent 12-month rate of consumer price inflation (and treasury bill yields at 1 percentage point below the bank rate)” (IMF Staff Report, 2000, p. 12), and by permitting banks to channel half of

their statutory reserves into “subsidized export credits” (on-lending to exporters at subsidized rates (IMF Staff Report, 2001). The equivalent of about 30 percent of reserve money was released through this scheme, at an interest rate of 30 percent (compared to a bank rate of 56 percent, and year-on-year inflation of 54 percent). This accelerated broad money growth from 30 percent in 1999 to 60 percent in 2000 (IMF Staff Report, 2001).

Also in early August, the RBZ announced a 24 percent devaluation of the Zimbabwe dollar, introducing a crawling peg exchange regime. Under the new arrangement, periodic adjustments of the exchange rate would be announced, based on inflation differentials with trading partners. Despite subsequent adjustments, however, the RBZ failed to adequately adjust the exchange rate, and the currency was still significantly overvalued by year end, with the parallel market about 25 percent more depreciated than the official rate (IMF Staff Report, 2001).

Severe shortages of fuel, electricity, and other essential imports and a backlog of private service remittances continued throughout 2000, and the stock of external payment arrears had reached about US\$500 million at end-September (including arrears to the World Bank, the African Development Bank, and the European Investment Bank that prompted suspension of disbursements). The public sector owed approximately three-quarters of these arrears (IMF Staff Report, 2000).

By mid-November, usable foreign reserves remained critically low at US\$12.3 million, or “about 3 days of projected 2000 imports of goods and services” (IMF Staff Report, 2000, p. 11), although this had risen to US\$22 million by the end of the year (see Table 1).

Table 1: Zimbabwe's International Reserves, 1998 - 2004 (in millions of US dollars, unless otherwise indicated; end of period) (IMF, 2005, p. 108)

	1998	1999	2000	2001	2002	2003	2004
Total gross reserves ^{1/}	296	479	288	121	129	131	255
Gold	83	105	45	55	37	39	1
IMF reserve tranche position	0	0	0	0	0	0	0
SDRs	0	0	0	0	0	0	0
Foreign exchange	130	268	243	66	92	92	254
Total foreign monetary liabilities	744	599	381	321	353	422	451
IMF liabilities	407	369	281	262	276	303	294
Other short-term liabilities ^{2/}	337	230	100	59	77	119	157
Net reserves	-448	-120	-93	-200	-224	-291	-196
Memorandum items:							
Gross official usable international reserves	55	47	22	16	15	16	25
(in months of imports of goods, f.o.b.)	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Gold (in millions of fine troy ounces)	0.62	0.73	0.47	0.19	0.11	0.11	...

Source: Reserve Bank of Zimbabwe.

1/ Official gross reserves include pledged and illiquid assets.

2/ Includes open general import license (OGIL) short-term facility, Reserve Bank stand-by credits, foreign currency deposits held by residents, and foreign bank deposits.

Despite a Supreme Court ruling on November 10 ordering the eviction of squatters, farm invasions were continuing (IMF Staff Report, 2000). And in December 2000, the Supreme Court issued an interdict against further land acquisitions, declaring that the government's fast-track land reform program violated the constitutional rights of commercial farmers (IMF Staff Report, 2001).

In January 2001, the government undertook a restructuring of its domestic debt. It limited the issuance of short-term treasury bills (the bulk of current domestic debt at the time was in 91-day treasury bills), and started issuing maturities of up to five years at low yields. Heavy government borrowing, and the involuntary redemption of short-term treasury bills caused a sharp increase in liquidity, which caused interest rates to fall to 14 percent in January 2001, from 65 percent at the end of the previous year (IMF Staff Report, 2001). This fall in interest rates discouraged repatriation, and firms chose to finance their domestic operations by borrowing locally, rather than selling foreign exchange for local currency (IMF Staff Report, 2001).

Inflation accelerated after mid-2001, and government borrowing from the RBZ approached the statutory limit of 20 percent of the previous year's revenue; and interest rates remained sharply negative in real terms. The government began to enforce a requirement that 45 percent of institutional investors' portfolios be held in low-yielding longer-term government securities. This, together with the collapse of interest rates, weakened the financial positions of insurance companies, pension funds, and banks (IMF Staff Report, 2001). As stated by Robertson (2007), institutional portfolios became subject to a steady and methodical process of confiscation.

At the same time, the remaining pools of banks' statutory reserves were released by the RBZ: for "on-lending at concessional rates of 30 percent to the "productive sectors", and 15 percent to exporters" (p. 7). The RBZ also used its influence to persuade banks to narrow the spreads between deposit and lending rates. These actions caused a sharp increase in reserve money growth to 150 percent in the year to September 2001, as compared with 22 percent in the same period in the previous year. Despite the devastating effects of these expansionary monetary policies on the poor, pensioners, and others on fixed incomes, the government continued to argue that these measures were necessary to stimulate productive activity (IMF Staff Report, 2001).

The IMF mission observed that there was no evidence to suggest that the government's strategy had been successful, as business fixed investments and construction had "essentially ceased". Rather, the negative real interest rates had caused asset substitution away from money market instruments, creating "bubbles in equity and residential real estate prices" (IMF Staff Report, 2001, p. 9). There was also increasing asset substitution toward parallel market activities and black market foreign exchange. The spread between the parallel and official exchange rate continued to widen, with the official rate pegged at Z\$55 to US\$1, while the parallel rate reached Z\$350 to US\$1 (IMF Staff Report, 2001).

These pricing bubbles were exacerbated by the emergence of a growing class of speculators with access to bank loans at negative rates of interest. In particular, the RBZ's subsidized credit scheme added liquidity to the financial system, helping to fuel the asset price bubble as the low-cost resources have been used, in part, by exporters to

buy shares on the Zimbabwe Stock Exchange or real estate (IMF Staff Report, 2001). Negative real interest rates also encouraged an attitude of “buy now” rather than wait, further contributing to the acceleration of inflation (IMF Staff Report, 2001).

The authorities continued to introduce new exchange measures, intended to mitigate the loss of competitiveness and curb the activities of the parallel market. In June 2001, the RBZ increased the surrender requirement for all exporters (with the exception of the tobacco exporters) to 40 percent from 25 percent (IMF Staff Report, 2001). The IMF observed that given the wide spread between the official and black market exchange rates, the 40 percent surrender was an effective tax on exporters (IMF Staff Report, 2001).

Despite the Supreme Court interdict against further land acquisition, the government continued to implement its fast-track program. In July 2001, the government increased the amount of land to be resettled from 5 million hectares to 8.3 million hectares, nearly 70 percent of the large-scale commercial farming land (IMF Staff Report, 2001). In that same month, the Finance Minister, Simba Makoni, publicly acknowledged the crisis, admitting to the complete depletion of foreign reserves, and warning of the possibility of severe food shortages (Timeline: Zimbabwe, 2009). Later in the year, the government would go on to launch an appeal for US\$360 million of humanitarian assistance (IMF Staff Report, 2001).

Table 2: Zimbabwe Consumer Price Index, 1998 – 2003 (IMF, 2005, p. 83)

	Weight	1998	1999	2000	2001	2002	2003
(Index, 1995=100)							
Food	33.6	250	392	559	1,164	3,725	27,399
Nonfood index	66.4	376	592	1,118	2,467	6,352	22,858
Beverages and tobacco	16.0	236	396	617	1,215	5,551	38,246
Clothing and footwear	6.9	164	287	437	1,129	3,652	22,833
Rent rates and power	17.3	188	255	410	744	1,253	5,704
Furniture and household goods	7.5	218	339	505	1,532	3,779	22,858
Medical care	1.7	181	351	539	1,083	2,884	19,298
Transport and communication	6.6	255	419	899	1,922	3,460	41,889
Recreation and entertainment	1.2	222	386	682	2,178	5,280	29,361
Education	4.5	207	284	410	850	1,877	9,870
Miscellaneous	4.7	233	328	474	1,247	3,180	17,536
Total index	100.0	226	355	550	1,167	3,490	24,384
(Year-on-year percent change) ^{1/}							
Food		62.9	56.8	42.9	108.0	220.1	635.6
Beverages and tobacco		66.7	65.3	55.5	97.0	357.1	589.0
Clothing and footwear		27.9	75.2	52.4	158.5	223.5	525.2
Rent rates and power		11.2	35.8	60.4	81.7	68.4	355.1
Furniture and household goods		52.1	55.5	48.9	203.6	146.7	504.9
Medical care		15.6	94.5	53.2	101.1	166.3	569.1
Transport and communication		62.3	64.4	114.8	113.7	80.0	1,110.6
Recreation and entertainment		46.4	73.5	76.7	219.6	142.4	456.1
Education		22.4	36.7	44.7	107.1	120.9	425.9
Miscellaneous		53.1	40.7	44.5	163.1	155.0	451.4
Total index		46.7	56.9	55.2	112.1	198.9	598.7
Source: Central Statistical Office.							
1/ December over December.							

As inflation continued to spiral (see Table 2), the government continued to treat it as a result of “avaricious profiteering” rather than a consequence of the RBZ’s inappropriately loose monetary policies (IMF Staff Report, 2001). The government introduced price controls in an attempt to contain inflation, particularly in the prices of key staples. In order to control the pricing of maize and wheat, the Grain Marketing Board was re-established as a monopoly in June. Then, from October 10, the wholesale and retail prices of basic commodities and foods came under administration, resulting in immediate shortages of these commodities (IMF Staff Report, 2001).

In an attempt to improve revenue collection, the Zimbabwe Revenue Authority was established on September 1, 2001. It was not, however, operational by year-end, due to organizational issues and a lack of foreign resources to complete essential upgrades to computer and software systems (IMF Staff Report, 2001). Government financing was further compromised on September 24, 2001, when the IMF declared Zimbabwe ineligible to use the general resources of the Fund (IMF Staff Report, 2004).

From mid-October, the RBZ effectively returned to a fixed exchange rate regime. The Zimbabwe dollar continued to depreciate rapidly on the parallel market, reaching “roughly six times the official rate” by the end of October (IMF Staff Report, 2001).

The land reform program was accelerated further in early November 2001 by a presidential decree amending the Land Acquisition Act. The government was permitted, in terms of the amendment, to assume immediate ownership of land targeted for acquisition. The state subsequently ordered the immediate suspension of all work on targeted farms, giving the current owners (at the time) three-month eviction notices (IMF Staff Report, 2001). On December 4 2001, the recently reconstituted Supreme Court reversed its previous ruling, finding that the acquisitions of land by government to have been lawful (IMF Staff Report, 2001).

The Presidential election of March 2002 gave President Mugabe 56 percent of the votes in the final tally (IMF Staff Report, 2003). The Commonwealth suspended Zimbabwe from its councils for a year after concluding that the election had been marred by high levels of violence (Timeline: Zimbabwe, 2009).

Activity in urban areas was constantly interrupted in the following two months, as the opposition and labour unions organized general strikes in March and in April, respectively (IMF Staff Report, 2003).

Throughout the year, the shortages of basic goods, fuel, electricity, and foreign exchange became “pervasive”. The economic crisis and political instability had resulted in significant capital flight, emigration of unskilled and (especially) skilled labour, as well as the smuggling of price-controlled goods to neighbouring countries (IMF Staff Report, 2003). “In particular, highly negative real interest rates fed credit growth and inflation. Increased regulations and government intervention [drove] activity underground” (IMF Staff Report, 2003, p. 7).

In April 2002, in response to the drought affecting most of Southern Africa in 2001/02, a state of disaster was declared by President Mugabe in all communal lands, resettlement and urban areas (IMF Staff Report, 2003). However, it was observed by both the IMF and the UN that the land reform program was a substantial contributing factor to the

loss of output, as “large-scale commercial farming [had] been severely disrupted” and “the newly resettled farmers [lacked] the knowledge and material support to utilize the land efficiently” (IMF Staff Report, 2003, p. 5).

Parliament approved President Mugabe’s November 2001 amendments to the Land Acquisition Act on May 8, 2002. Work on these farms was ordered to be suspended immediately, and eviction orders were issued giving owners three months to vacate their properties, setting August 8, 2002 as the deadline for compulsory acquisition (IMF Staff Report, 2003). In August, the eviction orders were ruled invalid by the High Court, because the government did not notify banks holding mortgage titles. In response, the Land Acquisition Act was amended, and approved by parliament in September, validating the eviction orders, and increasing the penalties for non-compliance (IMF Staff Report, 2003).

Table 3. Zimbabwe: Selected Interest Rates, 1998 - 2004 (In percent, end of year) (IMF, 2005, p. 97)

	1998	1999	2000	2001	2002	2003	2004
Rediscount rate (maximum) ^{2/}	39.50	74.41	63.30	57.20	57.20	--	120.00
Treasury bills (90 days)	35.19	69.41	61.24	25.94	25.92	79.75	132.72
Call money (maximum)	37.00	87.00	57.00	59.70	50.00	600.00	40.00
Certificates of deposit (maximum)							
3 month	42.00	80.00	65.00	36.00	42.00	600.00	100.00
6 month	47.00	80.00	80.00	65.00	40.00	800.00	110.00
12 month	41.00	75.00	75.00	70.00	40.00	900.00	150.00
24 month	40.00	70.00	60.00	70.00	50.00	900.00	150.00
Savings accounts (maximum)							
Commercial banks	27.50	44.00	41.00	19.00	19.00	45.00	45.00
Building societies	14.00	14.00	14.00	14.00	12.50	41.85	18.00
Post Office Savings Bank	21.00	21.00	21.00	21.00	11.00	11.00	11.00
Fixed deposits							
Commercial banks							
3 month	40.00	50.00	46.25	15.00	19.50	350.00	100.00
12 month	39.00	48.50	41.75	20.50	25.00	375.00	105.00
24 month	32.00	39.75	34.75	20.00	26.50	385.00	90.00
Acceptance houses							
3 month	40.00	70.50	61.00	24.75	37.00	550.00	105.00
12 month	35.25	51.25	40.00	27.50	31.75	450.00	75.00
24 month	34.75	34.88	30.00	26.50	26.00	444.00	75.00
Finance houses							
3 month	40.25	64.00	47.50	18.50	28.00	600.00	100.00
12 month	42.00	57.00	52.00	25.50	35.00	300.00	100.00
24 month	35.00	54.50	51.50
Post Office Savings Bank							
12 month	24.00	24.00	24.00	15.00	15.00	15.00	15.00
Average cost of funds							
Commercial banks	15.75	21.84	26.47	11.27	13.44	88.52	22.92
Lending rates							
Commercial banks (minimum)	40.50	56.00	55.00	15.00	35.00	82.00	135.00
Commercial banks (weighted average)	49.25	66.00	68.25	31.25	45.75	346.00	202.50
Building societies (low-cost housing)	24.50	21.50	28.75	25.88	30.75	44.50	85.00

Source: Reserve Bank of Zimbabwe.

1/ Rates are quoted as simple annual rates.

2/ On December 1, 1998, the rediscount rate was replaced by a Reserve Bank rate, which was suspended on November 20, 2002.

Nominal interest rates continued to be kept at artificially low levels; and became increasingly negative in real terms as inflation rose. Broad money growth accelerated to 165 percent in 2002 from 103 percent in 2001, as effective lowering of reserve

requirements led to the rapid expansion of credit to the private sector; these concessional facilities peaked at Z\$42 billion in July. Contrary to the government's expectations, the loose monetary stance failed to generate expansion in the production sector; and virtually no productive investment took place. Rather, prices rose rapidly, the black market rate continued to depreciate, financial savings grew increasingly less attractive, and the more rapid asset substitution effect continued to drive up the price bubbles in real estate, stocks, and consumer durables (IMF Staff Report, 2003).

In mid-November 2002, the price controls on selected food items that were introduced in October 2001 were broadened in scope, and extended to a six-month price freeze. With this move, nearly 70 percent of the items in the consumer price index (CPI) basket became subject to administered pricing; making official inflationary figures unreliable. The controlled prices were often below production costs, forcing many companies to close, contributing to a decline in employment in the formal sector. As the IMF mission observed, this main impact of the controls was to drive up prices in the informal markets (IMF Staff Report, 2003).

At the same time, the government attempted to clamp down on the parallel market exchange rate, the premium on which had reached as high as 2,900 percent during the year. Exchange controls were tightened, and foreign exchange bureaus were closed, leaving banks as the only authorised dealers in foreign exchange. Surrender requirements were further increased to 50 percent, while the balance retained by exporters had to be deposited with the RBZ, with its utilization "limited to a priority list and subject to RBZ approval" (p. 14). As a result, the RBZ saw its inflow of foreign exchange slow as most transactions moved to the parallel market, which appreciated slightly as the majority of export receipts were sold on the parallel market (IMF Staff Report, 2003).

In late 2002, Agriculture Minister Joseph Made declared the "land-grab" to be over, stating that the government had seized 35m acres of land from white farmers" (Timeline: Zimbabwe, 2009). By the end of the year, almost all white-owned farms had been designated for acquisition by the State (IMF Staff Report, 2003). By the beginning of 2003, the majority of farmers had left their farms in compliance with the eviction orders (IMF Staff Report, 2003). The decline in agricultural production began to negatively affect the manufacturing sector, which was predominantly agriculture-based (IMF Staff Report, 2003)

In January, the authorities revised their approach to price controls, issuing a Prices and Incomes Stabilization Protocol. In terms of the protocol, the negotiation of prices would take place within the Tripartite Negotiating Forum (TNF); and the commodities covered included most essential commodities and services (including "mealie meal, cooking oil, salt, milk, sugar, bread, flour, beef, paraffin, sanitary pads, water charges, rentals and rates, and transport fares"). Prices were then to be frozen at negotiated levels until June 30, 2003 (IMF Staff Report, 2003, p. 11).

Following on from this change in policy, the RBZ began to raise interest rates, but the rates still remained highly negative in real terms. In March 2003, the RBZ began overnight lending to banks at a margin of 20 percent over the repurchase rate, requiring

the lodging of securities as collateral; and in April, the repurchase rate was raised to 56 percent (IMF Staff Report, 2003).

In addition to these policy changes, with effect March 1, 2003, the official exchange rate was devalued to Z\$824 for US\$1; and consequently, the parallel market to official market spread for March narrowed to some 60 percent (IMF Staff Report, 2003). Policies for surrender requirements and the use of permitted export receipts remained unchanged.

As the inflow of export receipts to the RBZ dried up, parastatal companies (including the national electricity supplier, ZESA, and the national fuel supplier, NOCZIM) were forced to purchase foreign currency on the parallel market to pay their external arrears. In response to this demand, the parallel market began depreciate rapidly: reaching Z\$2,400 per US dollar at the end of May, compared with Z\$1500 per US dollar in late April (IMF Staff Report, 2003).

On May 6, further price adjustments, including an easing of price controls, were announced (IMF Staff Report, 2003). Prices for subsidized commodities continued to be controlled; and prices for essential goods were monitored, with producers having to “make their case for price increased to the Ministry of Industry and International Trade (MIIT) with profit margins not exceeding 20 percent” (p. 11). All other prices were liberalized, but made subject to surveillance by the Ministry of Industry and Trade, as well as unspecified ‘corrective measures to prevent profiteering’ (IMF Staff Report, 2003).

At the end of May, RBZ Governor Tumba went on leave until his retirement at the expiration of his term at the end of July (IMF Staff Report, 2003). As can be seen from Table 4, Tumba left a legacy of money creation; by the end of 2003, broad money (M3) had risen to 3,240.3 billion dollars, from 56.6 billion dollars at the end of 1998.

Table 4: Zimbabwe Money Supply, 1998 - 2003 (in billions of Zimbabwe dollars) (IMF, 2005, p. 92)

	1998	1999	2000	2001	2002	2003
Notes and coins in circulation	4.3	6.9	9.5	24.7	77.9	433.2
Demand deposits with the banking system	20.4	27.4	43.1	103.8	270.6	1,626.1
Narrow money (M1)	24.7	34.3	52.6	128.5	348.5	2,059.3
Savings deposits with the banking system	12.9	17.1	23.9	45.7	104.0	356.6
Fixed deposits of 30 days or less with the banking system	5.6	7.0	23.2	22.7	96.6	569.4
Broad money (M2)	43.1	58.4	99.7	196.9	549.0	2,985.3
Fixed deposits of at least 30 days with the banking system	13.5	15.1	17.9	41.4	81.9	255.0
Broad money (M3)	56.6	73.5	117.6	238.3	631.0	3,240.3
Sources: Reserve Bank of Zimbabwe; and IMF staff estimates.						

By this stage, Zimbabwe was completely cut off from foreign aid; and the effect of the foreign currency shortages climaxed during 2003. During the first nine months of 2003, a shortage of local banknotes developed, as the RBZ no longer had the hard currency necessary to import the paper and ink required for the printing of bank notes. In August,

there was a countrywide bank run as depositors attempted to access their cash, threatening public order. Anti-riot police were sent to banks to quell angry members of the public unable to withdraw their savings (Kairiza, 2009).

Over the course of 2003, real GDP declined by 9.3 percent “with agriculture, mining, manufacturing, and tourism being the most affected sectors” (IMF Staff Report, 2004, p. 5). Revenue collection declined by 1.5 percent of GDP, as the one-year lag on the collection of corporate tax revenue was eroded by inflation. Government domestic debt fell from 30 percent to 10 percent of GDP at end-2003, also reflecting the erository effect on Treasury Bills of highly negative real interest rates (IMF Staff Report, 2004).

The subsidized credit scheme continued in 2003, driving the acceleration in broad money growth. The availability of cheap credit, as well as consumer attempts to hedge against inflation, perpetuated the pricing bubbles in stock and real estate. (IMF Staff Report, 2004). The combination of low interest rates and rising inflation caused the chronic erosion of the capital base of Zimbabwe’s banks (IMF Staff Report, 2003); with the asset base of Zimbabwe’s banking system declining by 40 percent in real terms in 2003 (IMF Staff Report, 2004).

On 1 December 2003, Gideon Gono took over as governor of the Reserve Bank. (Kairiza, 2009). He immediately announced measures to tighten monetary conditions: the news drove up interbank rates, and caused the prices of shares and real estate to plunge (IMF Staff Report, 2004).

The Turning Point (2004)

The RBZ raised the interest rate sharply in the first quarter of 2004, and it reached a peak of 5,242 percent p.a. in March 2004. As a result of monetary tightening, inflation, which had increased to a peak of 623 percent in January 2004, decelerated sharply to around 130 percent at the end of 2004 (RBZ, 2007) (Kairiza, 2009). The sudden return to high interest rates sparked a liquidity crisis in the financial institutions, some of which were unable to raise depositors' funds. The fall of Century Discount House, a subsidiary of ENG Asset Management Companies, triggered a contagion amongst many indigenous banks (Makoni, 2006) (Kairiza, 2009).

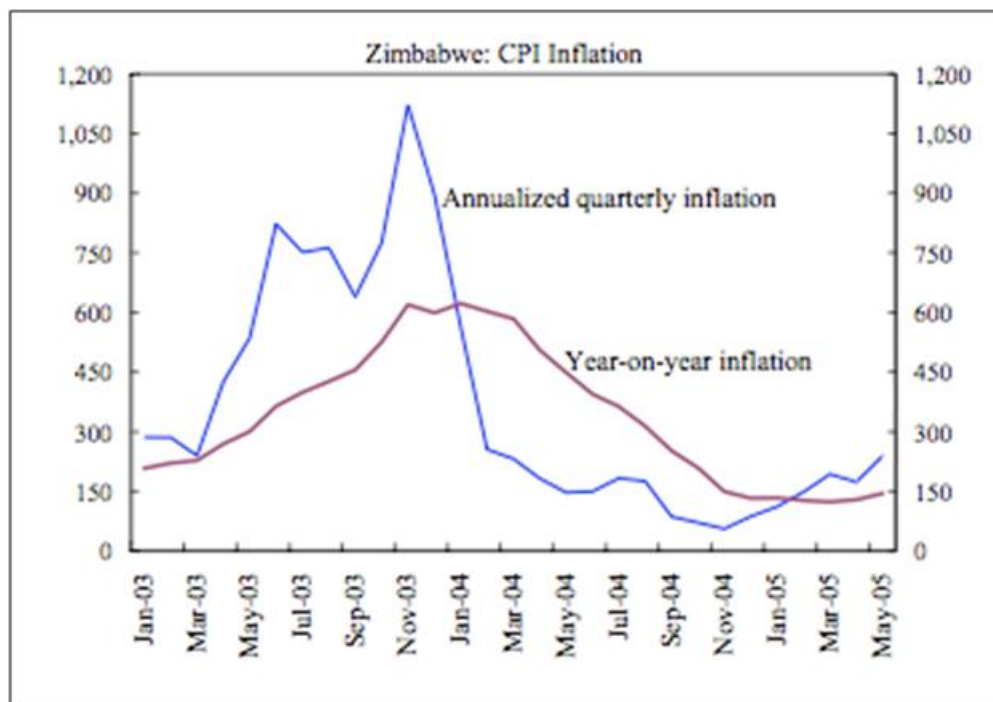
The new governor also instituted a managed foreign exchange tender ("auction") system. Under the auction system, foreign exchange from surrender requirements, FCA liquidations and other sources was auctioned twice a week by the RBZ. Only priority bids were accepted, and allocations were made at the bidding price starting from the highest accepted bid. Suppliers received the average rate paid by bidders (IMF Staff Report, 2004).

At the same time, Gono also changed the surrender requirements for exporters: requiring the surrender of 25 percent of gross export receipts at the official rate of Z\$824/US\$1, and a further 25 percent to the "auction." The remaining half could be retained in an FCA for a maximum of 21 days, after which any unused foreign exchange was surrendered for tender (IMF Staff Report, 2004). These new exchange rate policies brought foreign transactions back into the official channels, causing usable gross official reserves to increase to US\$76 million at end-May 2004, from US\$18 million at end-2003 (IMF Staff Report, 2004).

In May 2003, the majority of the price controls were removed, and the fuel market was partially liberalised in August (IMF Staff Report, 2004). As can be seen from Figure 1, inflation began to slow in response to these measures. However, domestic producers and exporters were hard hit by the high interest rates and substantially overvalued official exchange rate. The RBZ began to involve itself in quasi-fiscal activities³, arguing that it was aiding suffering industries by doing so. As Kairiza (2009) points out, these quasi-fiscal activities undid all previous successes in the inflation battle, and firmly set the country on the road toward hyperinflation. Interest rates were lowered sharply around the end-2004 (IMF Staff Report, 2005), and the RBZ began to compulsorily convert any surplus in the money market at the close of each day into new 'open market' treasury bills with long maturities (of up to 2 years) at deeply negative real interest rates (nominal effective rates of 70-100 percent) (IMF Staff Report, 2004). In addition, statutory reserve requirements on deposits were increased to 60 percent for commercial banks and lending houses (Muñoz, 2007).

³ Quasi-fiscal activity: "an operation or measure carried out by a central bank or other public financial institution with an effect that can, in principle, be duplicated by budgetary measures in the form of an explicit tax, subsidy, or direct expenditure and that has or may have an impact on the financial operations of the central bank, other public financial institutions, or government" Mackenzie, G. A., & Stella, P. (1996). *Quasi-Fiscal Operations of Public Financial Institutions*. IMF Occasional Paper No. 142, International Monetary Fund, Washington.

Figure 1. Zimbabwe CPI Inflation, 2003 - 2005 (IMF, 2005, p. 8)



Reserve money growth continued in 2004, attributed to “exchange losses from foreign exchange purchases from exporters at a higher exchange rate than sales to importers”; and “the RBZ’s initial provision of prolonged liquidity support to troubled banks” (IMF Staff Report, 2005, p. 12). By the end of the year, annualised quarterly inflation had begun to rise again.

The Road to Hyperinflation (2005 – 2007)

The pace of economic deterioration picked up again in the first five months of 2005. Year-on-year inflation stabilized at around 135 percent in early 2005, before picking up again to 164 percent in June. It is suggested that the CPI at the time was unreliable, likely understating inflation (due in part to publicly-administered prices, which were held at artificially low levels), but the extent is difficult to quantify (IMF Staff Report, 2005).

The parallel market premium, which had narrowed in early 2004, widened from 45 percent in January 2005 to about 100 percent by early July (IMF Staff Report, 2005). This reflected the loosening of monetary policy in early 2005, as well as the declining availability of foreign exchange in the auction system. The IMF stated that Zimbabwe's foreign exchange position remained serious, sitting at just 0.1 months of imports (IMF Staff Report, 2005). The rapid devaluation of the Zimbabwe dollar against the US dollar on the parallel market (for the 2005 – 2009 period) can be found in Table 6 (pg 38).

According to Coltart (2008), there were substantial abuses within the RBZ with regard to surrender requirements. He states that "members of the ruling regime and their associates [became] rich buying up foreign currency at the official exchange rate and then selling it at the black-market rate, pocketing the difference" (Coltart, A Decade of Suffering in Zimbabwe, 2008, p. 4).

In March 2005, ZANU-PF won two-thirds of the votes in the parliamentary elections, despite losing a number of seats in urban areas to the opposition (Timeline: Zimbabwe, 2009).

In May 2005, government forces retaliated against the urban strongholds of the opposition, initiating "Operation Murambatsvina" – a Shona term for "the rain that clears away the chaff" – which targeted the informal sector in urban areas. By 2005, the informal sector had constituted approximately 40 percent of Zimbabwe's workforce. According to UN reports, the informal economy had become the main source of income for most Zimbabweans by the time Operation Murambatsvina took place (Tibaijuka, 2005). Over a two-month period, police and army forces bulldozed shanty buildings, destroying whole townships and market areas (Coltart, A Decade of Suffering in Zimbabwe, 2008).

According to the United Nations Special Envoy's report, issued in July, Operation Murambatsvina left some 700,000 people across the country homeless and deprived of any source of livelihood; and indirectly affected a further 2.4 million people (PIN No. 05/139, 2005). The IMF reported that Operation Murambatsvina, by reducing informal market activity, would lower GDP and accelerate inflation (IMF Staff Report, 2005).

The overnight rate was raised to the equivalent of 1,373 percent (on a compounded annualized basis) in August, from 394 percent in June. The triple digit inflation during the year continued to be fueled by the high rates of money growth, which were mainly due to the sharp increase in the RBZ's quasi-fiscal activities, resulting in mounting losses on its balance sheet" (PIN No. 05/139, 2005). IMF staff also observed that the very high

statutory reserve requirements (60 percent of demand deposits) were impeding the the financial sector's ability to effectively balance their deposit and lending portfolios to support economic growth (IMF Staff Report, 2005).

During the year, the governance structure of the state was adjusted to create an upper house of parliament, the Senate. In November 2005, Zanu-PF won an overwhelming majority of seats in the Senatorial elections; a poll which was boycotted by the opposition MDC. The MDC subsequently split over Morgan Tsvangirai's decision to boycott the poll (Timeline: Zimbabwe, 2009).

According to the popular press, the UN humanitarian chief Jan Egeland stated that Zimbabwe was in "meltdown" after a four-day visit to the country in December 2005 (Timeline: Zimbabwe, 2009).

At the beginning of 2006, real interest rates were still deeply negative, and the parallel exchange rate to the US dollar was sitting at Z\$135,000 to one. In February, money market returns were raised by the RBZ, and three month treasury bills began to yield positive real rates of interest. The RBZ also introduced a one-yield index-linked Treasury Bill (Robinson, 2006). This was an important development, as one of the key characteristics of the Zimbabwean money market up to that point had been its lack of variable rate instruments; which would have enable investors to hedge against inflation in the money market.

On 15th February, the RBZ announced that it had cleared its overdue arrears with the IMF, paying US\$9 million to the fund (IMF, 2006). The following day, the RBZ Governor announced that the RBZ had printed Z\$20.5 trillion to buy the foreign currency that would clear the debt. By June 2006, a further Z\$60 trillion was printed to finance a 300 percent salary increase for policemen and soldiers, and a 200 percent salary increase for all other civil servants (Lee J., 2009).

As the inflation rate edged toward the 50 percent per month threshold of hyperinflation, the inevitable erosion of the inflation tax base worsened. At this point, pension fund assets were more or less eroded; and so the government turned to the banking system in its search for funding (Robertson, 2007). From around May 2006, any surplus or deficit held by a bank at the end of each day would incur massive economic penalties. A surplus at the end of the day was legally required to be either invested in two-year treasury bills with a 200 percent yield, or lodged with the RBZ for 30 days at zero percent interest. Banks in deficit had to borrow at an overnight rate of 850 percent compounded monthly, if the debt was secured with treasury bills, or 900 percent compounded monthly if not. Either way, given yearly inflation of around 1,200 percent by official estimates, even slightly imprecise liquidity management came with severe cost (Robinson, 2006).

In May, year-on-year inflation exceeded 1,000 percent for the first time (Timeline: Zimbabwe, 2009). In order to conduct even simple transactions, people had to carry large sums of currency. In July 2006, a set of currency reforms termed "Project Sunrise" was announced in the RBZ Governor's Monetary Policy Statement (MPS) in July 2006,

these were expected to alleviate this burden. With effect from 1 August 2006: the Zimbabwean dollar was replaced by a new Zimbabwean dollar at a ratio of 1000:1. The new dollar was also devalued against the US dollar (Kairiza, 2009). According to RBZ Governor Gono, the effective removal of three zeros would have a 'positive psychological effect on people's reference points when comparing the relative strength of the local currency against regional and international prices, as well as prices for goods and services...' (RBZ, 2006) (Kairiza, 2009, p. 12).

At the same time, the RBZ announced a reduction in lending rates, and easing of statutory requirements. Treasury bills were also returned to offering negative real yields. The parallel exchange rate, which had depreciated to Z\$500,000 per one US dollar just before the announcement of the RBZ, fell to Z\$650,000 per one US dollar shortly after the announcement (Robinson, 2006).

In September, the RBZ released reserve money supply growth figures for July, which increased to 862.6 percent annually, from 570.7 percent in January 2006 (Weekly Economic Highlights: Week Ending 29 September 2006). At the same time, the press reported that farm invasions were continuing to occur (The Zimbabwean, 2006).

In a bid to ease the economic crisis, the government launched its "Look East" program in the latter half of 2006, announcing on the 22nd December that it was negotiating a US\$2 billion loan facility with China. However, the China Metallurgical Group Corporation, the supposed lender in question, denied extending such an offer (The Mail and Guardian (SA), 2006).

When final money supply growth figures were released for December 2006, the annual money growth rate had risen to 1416.5 percent (Weekly Economic Highlights: Week Ending 23 February 2007).

In early February 2007, the RBZ declared inflation "illegal", announcing that any person caught raising prices and/or wages between March 1 and June 30 would be arrested and "punished". RBZ Governor Gono stated that only a "firm social contract" would bring about the end of the hyperinflation (Wines, 2007). However, despite these measure, Zimbabwe formally entered hyperinflation according to Cagan's (1956) definition in March 2007, "when month-on-month inflation reached 50.54 percent and year-on-year 2,200 percent (RBZ, 2007)" (Kairiza, 2009, p. 12).

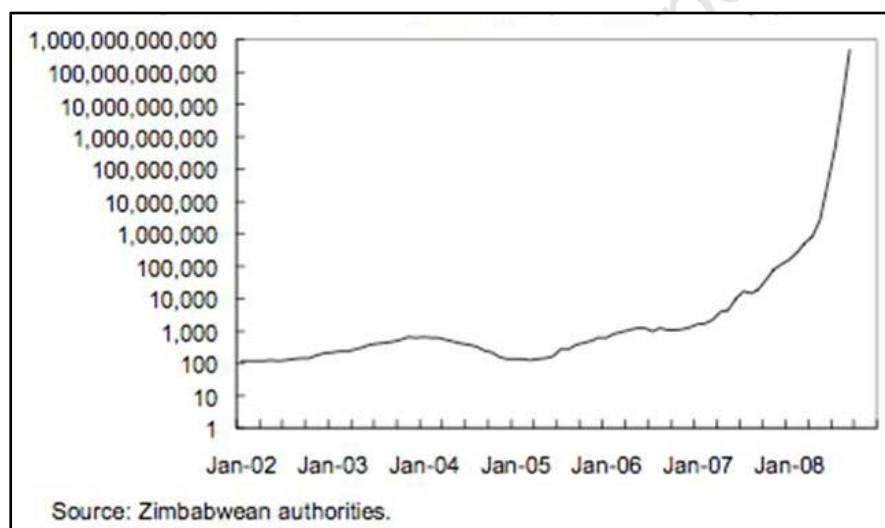
In mid-June, the US Ambassador to Zimbabwe, Christopher Dell, in an interview with the Guardian newspaper, predicted that inflation would reach 1.5 million percent by the end of 2007: "a modest estimate" in his words. At the time, analysts indicated an annualised inflation rate for June of 11,000 percent, in a country with 80 percent unemployment (BBC News, 2007). Shortly after this interview, it was announced that the RBZ had been ordered by President Mugabe to print an additional ZWD\$1 trillion in order to pay for the 600 percent pay increase for civil servants, and the 900 percent pay increase for the armed troops. In July, Mugabe declared that the printing of money would continue as long as there was not enough for underfunded municipal projects (Lee J., 2009).

The government continued to lash out against the business community, gazetting its Indigenisation and Economic Empowerment Bill in late June, which would require every business to have at least 51 percent of its shares held by indigenous persons (Indigenisation and Economic Empowerment Bill of 2007). The government announced further price control, halving all prices. The price controls resulted in a run on shops (TIMELINE: Chronology of Zimbabwe's Economic Crisis, 2007). Over the rest of 2007, manufacturing output fell by more than 50 percent (Coltart, A Decade of Suffering in Zimbabwe, 2008).

In August, the RBZ publicised a slowing of inflation to an annualized 6,592.8 percent, from 7,634.8 percent in July. The government credited the price freeze for the drop; and announced a further freeze on wages (TIMELINE: Chronology of Zimbabwe's Economic Crisis, 2007).

By September 2007, despite the price controls, the black market in Zimbabwe was once again booming. According to the press, “people previously employed for a paltry US\$11 a month (ZW\$2 million) a month were able to turn as much as US\$166 (ZW\$30m) just through black market trading” (Lee J. , 2009). The final run of hyperinflation was beginning, as can be seen in Figure 2.

Figure 2. Zimbabwe Inflation, CPI annual change (IMF, 2009, p. 5)



In November 2007, IRIN news reported that the Zimbabwean money supply had reached \$58 trillion revalued Zimbabwean dollars (around US\$41 million at parallel rates) (Lee J. , 2009). A cash shortage was hitting the country, as the banks ran out of notes to issue to the public. Cash transactions began to demand a premium; and individuals were only allowed to withdraw Z\$5 million per day (the rough equivalent of US\$4 in November 2007), while companies were restricted to daily withdrawals of Z\$20 million (about US\$14) (IRIN News, 2007).

Also during 2007, ZANU-PF adopted a motion to hold elections in March 2008, endorsing Mugabe as its presidential candidate (TIMELINE: Chronology of Zimbabwe's Economic Crisis, 2007).

The Climactic Dollarization (2008 – 2009)

By January 2008, the money supply had reached \$100 trillion of the newly revalued Zimbabwean Dollars. And on 21 January 2008, RBZ Governor Gono reported that the money supply had been increased to Z\$170 trillion, and that he expected that number to reach Z\$800 trillion by the following week (Lee J., 2009).

Table 5. Zimbabwe: Selected Economic Indicators (2007 - 09) (IMF, 2009, p. 19)

	Estimated		Proj.
	2007	2008	2009
Real GDP growth (annual percent change)	-6.9	-14.1	2.8
Nominal GDP (US\$ millions)	3,553	3,180	3,498
Inflation (annual percent change)			
Consumer price inflation (annual average) 1/	10,453	5.56E+10	6.9
Consumer price inflation (end-of-period) 2/	108,844	4.89E+11	...
Central government (percent of GDP, measured in US\$)			
Revenue	5.7	4.2	25.2
Expenditure and net lending	10.8	8.1	35.7
Quasi-fiscal activity by RBZ	22.9	35.7	0.0
Primary balance (including quasi-fiscal activity)	-24.5	-35.2	-5.9
Overall balance (including quasi-fiscal activity)	-28.0	-39.6	-10.5
Money and credit (US\$ millions) 3/			
Broad money (M3)	603	314	513
Net foreign assets	61	-707	-651
Net domestic assets	542	1,021	1,164
Reserve money	52	7	58
Velocity (M3)	5.9	10.1	6.8
External trade (US\$ millions; annual percent change)			
Merchandise exports	4.8	-8.5	-8.1
Merchandise imports	-3.8	24.4	0.4
Balance of payments (US\$ millions; unless otherwise indicated)			
Merchandise exports	1,804	1,651	1,518
Merchandise imports	-2,113	-2,630	-2,841
Current account balance (excluding official transfers)	-383	-906	-666
(Percent of GDP)	-10.8	-28.5	-19.1
Overall balance	-647	-612	-1,090
Official reserves			
Gross official reserves (US\$ millions; end-of-period)	58.0	5.8	5.8
Gross official reserves (months of imports of goods and services)	0.3	0.2	0.2
Debt			
Total external debt (US\$ millions; end-of-period) 4/	5,285	6,027	6,719
Total external debt (percent of GDP; end-of-period) 4/	149	189	192

Sources: Zimbabwean authorities; IMF staff estimates and projections.

1/ For 2008, annual average January–September 2008.

2/ For 2008, inflation at end-September 2008.

3/ Zimbabwe dollar values converted into U.S. dollars at the UN exchange rates at end-2007 and end-2008.

4/ Includes arrears and amounts for unidentified financing.

In March 2008, The Sunday Times obtained documents showing that Giesecke & Devrient (G&D), a printing and paper company in Munich, Germany, was receiving more than €500,000 per week (then US\$750,000) for delivering bank notes at a rate of Z\$170 trillion a week (Lee J., 2009).

According to Martin Rupiya, a professor of war and security studies at the University of Zimbabwe, "The regime is surviving by printing money. At this stage there is no other way" (Lee J., 2009)

Table 6. Zimbabwe Parallel Exchange Rate, 2005 - 2009 (UN Estimates)

Date	UN Exchange Rate (Z\$ to US\$)
31-Jan-05	6,400
28-Feb-05	6,400
31-Mar-05	6,200
30-Apr-05	6,200
31-May-05	9,000
30-Jun-05	12,372
31-Jul-05	17,500
31-Aug-05	24,025
30-Sep-05	26,003
31-Oct-05	65,000
30-Nov-05	70,000
31-Dec-05	87,900
31-Jan-06	106,145
28-Feb-06	109,125
31-Mar-06	109,125
30-Apr-06	117,500
31-May-06	133,000
30-Jun-06	225,000
31-Jul-06	380,000
31-Aug-06	255,000
30-Sep-06	330,000
31-Oct-06	425,000
30-Nov-06	1,100,000
31-Dec-06	1,600,000
31-Jan-07	3,050,000
28-Feb-07	4,600,000
31-Mar-07	14,000,000
30-Apr-07	25,500,000
31-May-07	36,500,000
30-Jun-07	160,000,000
31-Jul-07	135,000,000
31-Aug-07	160,000,000
30-Sep-07	350,000,000
31-Oct-07	900,000,000
30-Nov-07	2,100,000,000
31-Dec-07	4,000,000,000
31-Jan-08	5,000,000,000
29-Feb-08	14,000,000,000
31-Mar-08	45,000,000,000
30-Apr-08	150,000,000,000
31-May-08	680,000,000,000
30-Jun-08	30,000,000,000,000
31-Jul-08	350,000,000,000,000
31-Aug-08	6,500,000,000,000,000
30-Sep-08	2,700,000,000,000,000,000
31-Oct-08	11,000,000,000,000,000,000,000,000
30-Nov-08	350,000,000,000,000,000,000,000,000

Inflation reached 417,823 percent in March; as Zimbabweans returned to the harmonized presidential, senate, and parliamentary polls. The ruling ZANU-PF party lost in all three elections, losing its majority in the legislature for the first time. The presidential ballot required a runoff between Mugabe (with 43.2 percent of the original vote) and Tsvangirai (with 47.9 percent of the original vote), as neither had the outright majority. The runoff election never materialized, as Tsvangirai withdrew "citing the high level of violence against his supporters which was inimical to a free and fair poll" (Kairiza, 2009). Mugabe was sworn in to his sixth term of office (Timeline: Zimbabwe, 2009).

By July, shops were charging double the cash price for a cheque transaction, due to the time delay in the clearing of the cheque. Meanwhile, bank withdrawals were limited to ZW\$100 billion, which was less than the cost of a loaf of bread (Lee J., 2009). The RBZ introduced the 100-billion-dollar banknote in an attempt to alleviate the strain on the printing presses (Timeline: Zimbabwe, 2009).

By the end of July, the Institute of Commercial Management reported the parallel exchange rate to the British Pound Sterling was at Z\$1.2 trillion to one (Lee J., 2009), which is at odds with the rate quoted by the United Nations (see Table 6)⁴.

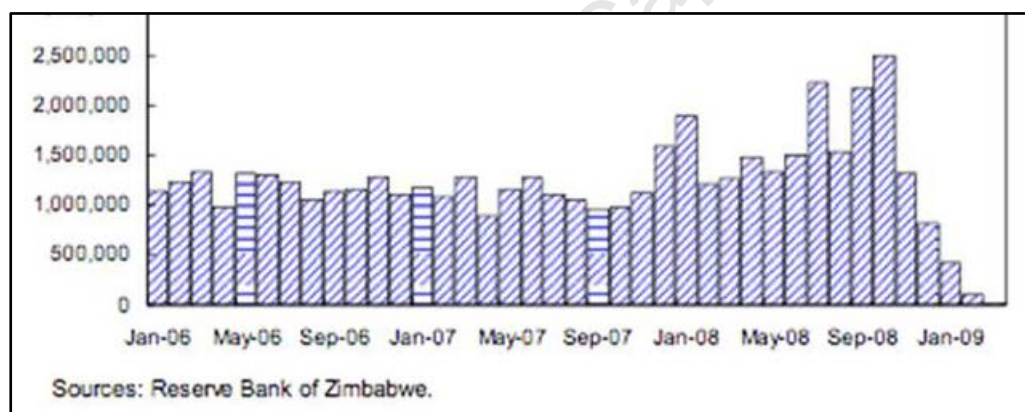
Hyperinflation was still being fuelled by the RBZ's quasi-fiscal activities, which had caused a rapid increase in the banks' deposits with the RBZ, and thereby rapid

⁴ However, the UN exchange rate suffers from a time lag, as it was set by the UN at a date, for a period. The rate was only revised in August.

increases in local currency M3 (includes local currency-denominated cash in circulation and deposits with the banking system). However, the printing of physical notes was unable to match the expansion of local currency M3, which led to cash shortages and “a significant divergence between the parallel cash and electronic transaction exchange rates”. In the third quarter of 2008, real money demand and the parallel market exchange rates collapsed in response to the still-accelerating inflation. As a result, by the end of the year, reserve money declined to an equivalent of about US\$7 million (at the UN exchange rate of Z\$35 quadrillion (10^{15}) per US dollar) and local currency-denominated M3 declined to US\$6 million. In contrast, foreign currency deposits were estimated at around US\$300 million at the end of 2008 (IMF Staff Report, 2009). Between January and December 2008, the money supply growth rate rose from 81,143 per annum, to 658 billion percent per annum (Lee J., 2009).

In effect, the extreme hyperinflation left the local currency defunct as the economy dollarized in late 2008. Inflation is estimated to have peaked in September 2008 at about 500 billion (10^9) percent⁵. From that time, the pricing of goods and services shifted to foreign currency units (mostly, the U.S. Dollar and rand), and the local currency virtually disappeared from circulation (IMF Staff Report, 2009). As can be seen from Figure 3, Zimbabwe dollar transactions going through banks in the form of cheques and direct transfers had effectively ceased by January 2009.

Figure 3. Volume of Transactions in Zimbabwe Dollars (IMF, 2009, p. 10)



Rand and the US dollar, completing Zimbabwe's official dollarization (Kairiza, 2009). The newly compiled US dollar CPI for February 2009 showed a 3 percent month-on-month decline, as the significant increase in utility tariffs was more than offset by a fall in tradable prices (IMF Staff Report, 2009).

Dollarization helped stabilize prices, improve revenue performance, and, perhaps most importantly, helped impose fiscal discipline on the authorities (IMF Staff Report, 2009).

University of Cape Town

Section V: Common Features in History

The Hyperinflations of History

The first recorded hyperinflation to meet the Cagan definition was the French Assignat episode that followed the French Revolution. Capie (1986) includes the episodes that took place in America during the War of Independence and the American Civil War. These episodes are somewhat unusual, as the inflation was not felt across all the states in the same way: rather, the Cagan definition was met in selected states at certain times, as opposed to the country as a whole. These three pre-20th century episodes have received a large amount of academic attention; due in part to the fact that they were the first episodes of their kind, but also due to the amount of time that academics have had to study them. Accounts of these episodes, therefore, feature very strongly in the comparison undertaken in this section.

Table 1: Hyperinflations of the 20th Century		
Country	Year (s)	Highest Inflation per month
Austria	1921/22	124.27
Argentina	1989/90	196.6
Armenia	1993/94	438.04
Azerbaijan	1991/1994	118.09
Belarus	1999	59.5 ⁶
Bolivia	1984/86	120.39
Brazil	1989/90	84.32
Bulgaria	1997	242.7
China	1947/49	4,208.73
Congo (Zaire)	1991/93	124.3
Germany	1920/23	29,525.71
Georgia	1993/94	196.72
Greece	1942/46	11,288
Hungary I	1923/24	82.18
Hungary II	1945/46	1.295 E + 16
Kazakhstan	1994	57
Moldova	1992	170.98
Nicaragua	1986/89	126.62
Peru	1989	104.14
Poland I	1921/24	187.54
Poland II	1989/90	77.33
Serbia	1992/94	309,000,000
Soviet Union	1922/24	278.72
Taiwan	1945/49	398.73
Tajikistan	1995	78.1
Turkmenistan	1993	62.5
Ukraine	1991/93	249
Yugoslavia	1990	58.82
Source: Bernholz & Kugler (Amended), 2009		

⁶ Geometric average of quarter. Serbia with Montenegro: New Yugoslav Republic.

The hyperinflationary episodes that took place in the 20th Century are summarised in Table 1, as amended from the list produced by Berholz & Kugler (2009).

The bulk of the available academic literature focuses on the Great Inflations of the 1920s and 1940s. These episodes also feature very strongly in the comparison. As Fischer *et al.* (2002) observe, there were no hyperinflations between 1947 and 1984. In the modern decades, hyperinflation reappeared in Latin America, Africa and Eastern Europe. There is much less coverage of these episodes in academia: potentially due to linguistic difficulties, as the research for this paper was confined to papers published in English. However, some of the earlier Latin American inflations, particularly the Bolivian inflation, have many useful accounts available. The Eastern European hyperinflations are very recent, and therefore not many studies have been undertaken in their regard.

Fischer *et al.* (2002) “exclude episodes lasting less than two months because many transition economies, especially those in the former Soviet Union, suffered at least one month of more than 50 percent inflation when price controls were lifted. Since these episodes were more in the nature of a price level adjustment than an ongoing process of high inflation, [they] have changed the definition to exclude them” (p. 7).

The Key Features of the Zimbabwean Hyperinflation

In Zimbabwe’s hyperinflationary episode, we find a more classical pattern emerging: a fiscal authority without an effective tax collection service, in an attempt to appease the various political factions at play (in particular, the war veteran movements and the power houses within the ruling party), resorts to printing currency.

However, the passage of Zimbabwe’s decline is still a complex one. In the late 1990s, the Zimbabwe government had attempted to hold the exchange rate by using up its official reserves. Once these were depleted, the country lay in a dangerous position, whereby any fiscal shocks would cause severe pressure on the country’s financing.

These fiscal shocks then occurred: unbudgeted and unfinanced expenditures in the form of war veteran compensation payments and military outlays in the DRC conflict. With the ensuing economic difficulties, the population became restless, and political dissent more commonplace. The ruling party, in its bid to retain power, began to implement populist policies (the fast track land reform program), which required still further expenditure. International donors, concerned by the political situation, cut Zimbabwe off from foreign credit, exacerbating the crisis of financing the growing fiscal deficit.

By this point, under the direction of the fiscal authorities, the Reserve Bank was financing the deficit by printing money; even as the government was borrowing domestically by legally requiring financial institutions and pension funds to hold specified portions of their portfolios in government securities. As the financial institutions and pension funds were systematically deprived of their capital bases, and inflation was destroying the real value of the government’s normal tax revenues due to time lags in collection, the state became increasingly reliant on the printing press for financing.

Even though the currency depreciated in real terms, the RBZ continued to maintain the exchange rate at fixed rates. According to the IMF, the authorities recognised the

overvaluation, but stated that “political factors, including at the highest level, blocked a change” (IMF Staff Report, 2003, p. 20). The overvalued official rate proved an alternate source of revenue, as the RBZ exploited the spread between the official and parallel rates. However, despite efforts to force the inflow of foreign currency through official channels, most transactions shifted toward the parallel market: making the government almost entirely dependent on money creation.

At this point, the public had begun to use alternative forms of currency; and prices continued to increase at higher rates as the velocity of circulation drove the inflation. The consequent erosion of the inflation tax base led to price controls and crackdowns on informal markets. This then resulted in the increasing of premiums on available goods on the parallel market, sparking even higher rates of inflation once the controls were lifted. At the same time, money was being created ever more rapidly, as the state attempted to maintain the real value of seigniorage. Economic agents had begun to benefit from speculating during the hyperinflation, and the newly rich now sought to prolong the episode: allowing them to take further advantage of negative real rates of interest, as well as effective mini-monopolies of supply due to the commodity shortages caused by the inflation.

Inevitably, the hyperinflation spiralled to such extreme levels that the depreciating currency was abandoned as a means of transaction; the monetary authorities were stripped of their seigniorage power as the currency they print was no longer accepted, and the economy self-dollarized. This dollarization was later officialised by the fiscal authorities; when tax collections were effected in foreign currency.

The following key features of Zimbabwe’s hyperinflation are identified:

- A large fiscal deficit, causing a loss in investor confidence, existed before and throughout the episode.
- Zimbabwe’s ideological government, with its populist political and economic policies and denial of money supply growth as the root cause of the inflation, caused and perpetuated the inflation.
- An inefficient tax collection system did not permit fiscal adjustment in response to higher expenditure requirements.
- The cut-off from foreign credit led to the reliance on the printing press and domestic borrowing.
- The rapid inflation led to capital flight, and the emerging of asset pricing bubbles as the population sought to hedge itself against the inflation.
- Hedging led to profiteering, as the continuing inflation allowed economic agents with access to banking capital to invest in assets, whilst benefiting from the inflationary erosion of their borrowed funds. It was then in their interest to prolong the inflation.
- The government attempted to preserve the inflation tax base through price controls, which failed to control or halt the inflation.

The question to be asked is whether these features are common to other classical inflations, going back as far as the Assignat episode in late 18th century France.

Of course, it is accepted that the presence of large budget deficits is a common factor without exception: without a fiscal deficit to finance, there would be no need to print money. Of more interest, however, are the other key features observed in the Zimbabwean episode.

Ideological Governments

The biggest problem with ideological governments is their interference with free market forces. Once policies are implemented that interfere with these forces, the market will continue to react: potentially in ways that are not anticipated by ideological policymakers. Furthermore, the cost of implementing these policies is usually extensive; both in terms of the physical cost of implementation, as well as the loss of future economic potential.

Zimbabwe's government has sprung from guerrilla roots: and its ideology still retains its revolutionary flavour. Fashioned after the communist movements in Cuba and the Soviet Union, members of the Ruling Party are referred to with the title 'Comrade', and the military influence in politics is upheld with the clenched fist symbol of ZANU-PF. Since Independence, the government purpose has been to restore the balance of power, and the balance of economic wealth, away from the white colonial minority, and toward the indigenous majority. Late in the second decade of Zimbabwe's independence, the government began to effect this restoration of balance by force, rather than by diplomacy.

This move toward indigenization is similar to the Communist nationalization in the Soviet Union. In mid-1918, the Communists nationalised all large factories, banned private trade and appropriated goods and resources from the rich and the middle-class (Fischer, 1994). This nationalization was the beginning of the Soviet Union hyperinflation.

A similar situation is observed in Nicaragua in the early 1980s, after the Sandinista government took power and introduced a state-socialist regime. The state expropriated large amounts of agricultural land and distributed it to "landless peasants and cooperatives" (Kagami, 2007, p. 2). After the redistribution, 17.1% of all agricultural land was occupied by state farms, and 20.1% by Sandinista cooperatives (Jonakin, 1997). By 1985, extremely high government deficit spending had exhausted all forms of alternative financing, and the Sandinista government began printing money. The monetary base increased by 186% in 1985, 235% in 1986 and 610% in 1987. The ensuing hyperinflation (as measured by the consumer price index) reached 14,361% in 1988 (Kagami, 2007).

The costs of the redistribution process had partly caused the deficit in Nicaragua, and the poor production from the seized land had reduced exports (and the corresponding inflows of foreign currency), as well as increasing the import requirement (and the corresponding outflows of foreign currency). At the same time, the policies had resulted in a trade embargo from the United States, which further exacerbated the deficit situation (Kagami, 2007). Whilst the causal link is not firmly established, it is clear that the land distribution contributed to the rise toward hyperinflation. Certainly, in the Zimbabwean case, the land distribution process caused the cessation of foreign aid, and

heightened the foreign exchange crisis. Furthermore, the government had printed money to provide social grants to the newly-endowed farmers.

At the same time, one should not discount the effect of populist ideology on economic policy: particularly on a party's insistence on a certain course of action when history has proven it false. For example, during the German hyperinflation, the Reichsbank made many attempts to control the exchange rate, maintaining the hyperinflation was caused by the depreciation of the mark, whilst still continuing to print money at increasing rates. The Reichsbank denied the existence of a link between inflation and money supply growth; because, they argued, the note issues were backed by a one-third reserve (even though this 'reserve' included loans issued by the Loans Office) (Holtfrerich C.-L. , 1986). In the later years of the hyperinflation, the Reichsbank began to favour the creation of bank deposits over the issue of banknotes: in the belief that the substitution of one form of new purchasing power for another could limit inflation! (Bresciani-Turroni, 1937). Denying the causal link between money supply and inflation allowed the hyperinflation to continue and accelerate; where a shift in policy could have slowed it. In the Zimbabwean situation, the government spent the early years of the episode fixated on the maintenance of the official exchange rate: whereas, in reality, this was never the root cause of the inflation problem.

This suggests that hyperinflationary episodes are sometimes a result of ignorant negligence; and perhaps a stubborn refusal to consider alternate points of economic view. As White (1959) puts it: "statesmanlike measures, careful watching, and wise management would, doubtless, have ere long led to a return of confidence, a reappearance of money, and a resumption of business; but these involved patience and self-denial, and, thus far in human history, these are the rarest products of political wisdom. Few nations have ever been able to exercise these virtues" (p. 32). This could indeed be the case where a number of poor economic choices force a country down the path of money creation. However, the real question surrounds the length of time that governments can take to react to the hyperinflation. At this point, the role played by the authorities appears more sinister: when inflation and the depreciation of the currency are used as political tools; when hyperinflationary economies are deliberately created in order to advance a political ideology, or to maintain a particular regime's grip on power.

For governments that follow a communist or socialist ideology, high inflation can achieve the equality of the classes far quicker than most methods. According to Keynes (1920), Lenin is said to have looked to the debauching of a country's currency as the best way to the overthrow capitalism. Keynes affirms that through a prolonged period of inflation, a government can confiscate the wealth of its citizens. This potential to use money creation to enforce a communist ideology was seen in the Soviet Union hyperinflation. As Capie (1986) observes, "the new regime had a clear desire for rapid inflation to wipe out the middle classes and speed the revolutionary cause" (p. 128). Maier (1978) also states that the drastic depreciation of the rouble was justified by the Soviets as a method of expropriating the bourgeoisie.

In Hungary's second hyperinflationary experience, a similar cause is identified. Hungary, having been through one hyperinflation in the 1920s, was anxious to avoid a similar experience. Despite a reparation payments burden and high military expenditures, Hungary had a strong, popular government in power, and a central bank that

understood inflation and warned against its dangers (Bomberger & Makinen, 1983). However, when the Central Bank objected to the vast numbers of Treasury Bills being issued to finance these expenditures, the Allied Commission, under the influence of the Soviets, ignored their objections. Here again, it seems that the Soviets were happy to see inflation proceed and destroy the middle class (Capie F. , 1986).

It should be noted that hyperinflation generally has the effect of eliminating the middle class, whether or not a government intends it. In the Zimbabwean situation, the government's aim was to reduce the economic power held by the white minority, which has been accomplished. One could argue that the ruling party saw the damaging effect of inflation on the lower classes as simply a necessary cost. It should be noted, however, that the rural lower class has always operated largely on subsistence farming; and, as such, are sheltered to some extent from the ravaging effects of hyperinflation. The real sufferers in the lower classes were the urban-dwelling poor, and the middle-class white population. Given that the voting stronghold of the ruling party was always the rural vote, and that the urban vote has traditionally had stronger opposition; the hyperinflation could be seen as an attack against the opposition. In most of these episodes, it is observed that the greatest sufferers during hyperinflation are the ruling government's opposition.

However, it is unlikely that these consequences were fully foreseen by the Zimbabwean authorities. Rather than hyperinflation being the goal of the land redistribution process, it is more probable that the episode was the result of the agricultural disruption, followed by a number of successive fiscal shocks, without corresponding fiscal adjustment. The necessary fiscal adjustment should have included adjustments in the tax system and collection process: problems with taxation have often left countries with no choice but to print currency.

Inefficient Taxation System

Civil wars, revolutions, and even periods of social unrest are often associated with hyperinflation. Capie (1986) observes that such political situations can lead to uncertainty; which in turn cause uncertainty around future streams of income from taxation. Without a commitment to future tax streams, there is no backing for fiat money. The author goes on to say that this observation may "prove useful in directing attention to some critical point which might constitute the necessary shock to the system that carries it over a critical threshold on the inflationary path" (p. 147).

This is not to say that revolution or civil unrest will automatically lead to inflation, as there have been many instances where these conditions existed, but rapid inflation did not take place. Capie (1986) suggests that this could be explained by examining the tax system, as a system based on direct taxation would be more elastic than an indirect one. Under a direct taxation system, the tax base could be rapidly expanded when required, meaning that such a country would be less likely to run into budget difficulties.

An example of this is found in the American War of Independence. Public sentiment at the time was strongly against taxation (in any conventional form); and the Continental Congress, which was the only body representative of the colonies as a whole, had no power to tax. That power lay with the individual states, from whom the Congress could

then requisition funds. According to Capie (1986), only 6 percent of the required revenue was raised in this way, due to public opposition. Some of the funds raised were obtained by borrowing abroad and “several European countries, notably France and Spain, made gifts; but in total this came to less than 20 per cent of revenue” (p. 122). The Continental Congress financed the balance by printing paper money in greater quantities. This led to the rapid depreciation of the currency (the Continental), hyperinflationary conditions, and the coining of the phrase “not worth a Continental”.

Inadequate taxation was also a primary cause of the Great Inflations of the 1920s: not only were taxation revenues insufficient to fund the planned and actual expenditures, but the tax systems were inefficient to a point where the costs of collection were greater than the real value of the tax collected. The League of Nations is said to have stated that their technical advisors ‘were powerless to repress the inefficient accountancy, the slowness with which arrears in taxes were collected and even the wholesale corruption...’ (Capie F. , 1986, p. 127).

During the Greek hyperinflation, however, we see part of the problem lying with the type of tax system in place. Makinen (1986) notes that the Greek tax system was not based on *ad valorem* taxes, which made it difficult for tax revenue to keep abreast with inflation.

In the Zimbabwean situation, there were widespread inefficiencies in tax collection. The government took steps to address this by reconstituting the tax collection service into the Zimbabwe Revenue Authority (ZIMRA) in 2001 (Statutory Instrument No.21B of 2001). However, by this point, the Keynes-Tanzi effect had already rendered the tax system inefficient, almost by default. Furthermore, when the government had attempted to increase taxes in order to finance the war veteran packages and the military expenditures in the DRC, the move had been met with opposition and mass protest (Kairiza, 2009). The Zimbabwean government reacted to the protests by monetising the debt: the problem may not have been the tax system, but rather the government’s inability to enforce its tax reforms.

However, the deficit created by a lack of efficient tax collection, whilst problematic in the long term, can and should be covered temporarily by sources other than the printing press. The problem only becomes pressing when the authorities have no viable alternatives.

Cut-off from International Aid

In covering the deficit created by the fiscal shocks of the war veteran compensation scheme and the military involvement in the DRC, the Zimbabwean government had no real alternative to monetizing its debt. Foreign exchange reserves had been depleted previously in an attempt to prop up the Zimbabwe dollar in the mid-nineties; and foreign credit was hard to come by, due to Zimbabwe’s controversial policies in land reform, and the accompanying economic uncertainty. The lack of foreign credit has contributed to the development of hyperinflations in the past.

Sachs (1987) observes that the Bolivian hyperinflation was the result of a series of less-dramatic fiscal shocks occurring during a period of political instability. After General Banzer left office in 1978, the civilian and military political forces fought “a bitter

political competition for power” (p. 279). At the same time, the early 1980s saw the world economy as a whole facing a worsening economic climate, with “high interest rates, falling commodities prices, and tight credit” (p. 279). On top of the political crisis, Bolivian access to international capital markets had dried up by the end of 1980; and the World Bank and the IMF ceased lending money in the following year.

The problem arose because Bolivia had begun to show growing fiscal deficits (including losses of government-owned firms) in the second half of the 1970s, which it had financed with foreign borrowings. Apart from the global fall in available credit, Bolivia’s increasing foreign debt came with an accompanying increase in service costs, which also made it difficult to obtain further foreign financing. The situation culminated in a foreign exchange crisis in March 1982; and the consequent devaluation of the Bolivian Peso sparked a cost-push rise in inflation due to rising import costs. The deficit continued to increase; and because foreign financing was no longer available, the Bolivian government was forced to finance the deficit by printing money (Bernholz P. , 1988).

Once a government has resorted to the printing press, it does not take long for its electorate to become aware of the inflationary effects of money creation. As the situation worsens, the depreciating currency is no longer seen as a store of value, and capital flight begins to take place.

Flights to Capital

Cagan (1956) states that once the currency depreciation appears to become indefinite, individuals would prefer to invest in risky equity stocks and durable goods, principally because there are almost no better alternatives. Fischer *et al.* (2002) state: “as inflation increases, the length of contracts becomes shorter and/or more contracts and prices are denominated in foreign currency” (p. 38). They go on to say that in hyperinflations, all prices come to be expressed in foreign currency. In other words, during times of hyperinflation, one would expect to find consumers flocking toward assets that hold their value as a hedge against the rapid depreciation of the currency. This is observed in all hyperinflationary episodes.

In France, when the depreciation was rapid, there came about “an apparent revival of business”. According to White (1959), this reaction was the result of “the intense desire of a large number of the shrewder class to convert their paper money into anything and everything which they could hold and hoard until the collapse which they foresaw should take place” (p. 276). White (1959) goes on to say that the weight of the hyperinflation fell on the working class, who did not have the foresight, skill, or means to hedge themselves by putting “as much of their property as possible into objects of permanent value” (p. 288). Hyperinflation is, in essence, a tax on the poor, who have not the power to evade it.

In the Confederacy during the American Civil War, borrowers were refused credit unless they committed to repaying lenders in gold, leather, or some other form of commodity. Furthermore, when borrowers attempted to settle debts incurred before the war with the inflated Continental, the creditors refused to accept payment (Lerner E. M., 1955).

In the 1920s, the flight from the mark occurred in Germany, as the hyperinflation caused a bias toward investment rather than consumer goods (Siklos P. L., 1989). As in

Germany, Austria also experienced “flight from the crown” as the public transferred its wealth from the depreciating crown into foreign currency and real assets (Sargent, 1982).

During the Chinese hyperinflation, the official currencies were discarded “both as units of account and as stores of value” (p. 244) as a result of the continuous inflation: instead, businesses and individuals “customarily held reserves in United States dollars, Chinese silver dollars, gold, short-term notes, or readily disposable commodities such as rice and flour” (Campbell & Tullock, 1954, p. 241). The Chinese also turned to the stock market as a store of value: monthly turnover on the exchange increased to around 10 million shares in 1940, from about 1.5 million shares in 1937 (Campbell & Tullock, 1954).

In the same way, during Zimbabwe’s hyperinflation, the IMF observes pricing bubbles in the equity stocks and real estate, as well as a soaring parallel rate as the population began to deal increasingly in foreign currency.

As the use of the local currency begins to diminish, the inflation tax base begins to contract. Up and until this point, the monetary authorities could maintain the real value of their seigniorage revenue by increasing the rate at which they print money. However, seigniorage revenue can only be earned provided that the currency is still used in circulation. Once the currency is not as accepted, the real level of seigniorage revenue begins to fall. In order to prevent this from happening, the authorities often attempt to slow the depreciation of the currency by implementing price and exchange controls. History has shown that these do not slow, but rather propel inflation.

The Failure of Price Controls

As with many hyperinflationary episodes, the French government attempted to implement price and exchange controls. In 1793, an exchange control known as ‘the Law of the Maximum’ was enforced, decreeing that “any person selling gold or silver coin, or making any difference in any transaction between paper and specie, should be imprisoned in irons for six years; that anyone who refused to accept payment in assignats, or accepted assignats at a discount, should pay a fine of six thousand francs and suffer imprisonment twenty years in irons” (p. 277). Later in the year, presumably in reaction to the public’s lack of reaction, “the penalty for such offenses was made death” (White, 1959). White (1959) adds that in May 1794, the death penalty was further applied to any person convicted of having asked, before the conclusion of a bargain, in what money payment was to be made. All the while, the French government continued to issue more assignats into circulation. Despite such strict penalties for the violation of price controls, inflation continued to rise; and by December 1794, the Law of the Maximum had been repealed.

Hamilton (1977) also comments on the failure of the price controls during the French episode. He observes: “during the Reign of Terror (1793 – 1794), ridiculously low ceilings on grain prices were effectively enforced by ruthless use of the guillotine. Sales above the price ceilings seldom occurred, but the authoritarian regime failed miserably in its efforts to force holders of grain to sell. Threatened starvation, beginning with Paris, forced relaxation of price controls” (as quoted in his article, ‘The Role of War in Modern Inflation’).

A similar situation occurred during the American Civil War, when the Southern government enacted price controls as a direct response to public protests of high prices, 'caused' by speculators and extortioners. However, as the controls grew more unrealistic, they collapsed (Lerner E. M., 1955).

In Austria, the flight from the crown diminished the resources that the government could command by printing money (Sargent, 1982). In order to prevent the flight to foreign currency, Austria centralized the trading of foreign exchange at the Devisenzentrale. There were severe penalties for violating the strict exchange controls, and informers were rewarded (Bordes 1924). In spite of these restrictions, Sargent (1982) asserts that during 1921 and 1922, Austrian citizens were both holding large amounts of foreign currencies, and transacting with them.

In terms of historical context, the Zimbabwean situation is just the most recent episode to illustrate the ineffectiveness of price controls. It is suggested that the public is inherently aware of the ineffectiveness of price controls as a long-term measure. When a government body announces that price controls are the solution to an inflation problem; each citizen is faced with an ethical dilemma: either comply in the hope that all will follow suit, or break the price control in order to reap the profits that the otherwise-compliant have sacrificed. When the Governor of the Zimbabwean Reserve Bank suggested that the only solution to the crisis was a firm social contract; the public should have and did remain unconvinced. Such a contract would require each and every player to commit to a common rule. When the proponents of this contract have preceded their announcement with mismanagement and corruption, it is almost inevitable that the public will choose to break with price controls:: causing everyone to lose when the inflation returns worse than before.

Interests of the Newly-Rich – the Destruction of Debt

Once an inflationary spiral is underway, White (1959)'s growing class of speculators, who have benefited from the inflation, seek to prolong the episode in order to increase their gain. Bresciani-Turroni (1937) identified manufacturers and producers as principal beneficiaries of the collapse of a currency: wage rates rarely keep up with the rate of inflation, taxes are eroded, the real value of mortgage debts are rapidly reduced; bank credits can be used to purchase real assets and foreign exchange; and the difference between internal and external prices can be a source of considerable gains for exporters.

In France, the issue of assignats created a vast class of debtors, who had only been required to put small payments down, with the balance being paid in instalments (White, 1959). As White puts it: "this body of debtors soon saw, of course, that their interest was to depreciate the currency in which their debts were to be paid. ... This great debtor class, relying on the multitude who could be approached by superficial arguments, soon gained control" (p. 184 – 185). By the end of the inflation, one could settle a debt of 10,000 francs taken out in 1790 for about 35 francs (in real terms).

In Germany, Bresciani-Turroni (1937) states that the inflation would not have reached such large proportions if it had not been favoured in many ways by those who drew profit from it. Representatives of these classes used their influence to slow monetary

and fiscal reforms, as well as to sabotage all proposals for the stabilization of the German exchange. Reform was only accepted when, at the end, Germany faced economic catastrophe, and it became clear that the consequences of inflation would rebound against its supporters. It seems certain that the industrial classes contributed greatly to the mark's depreciation; alongside the agriculturalists, whose mortgage burden was reduced due to inflationary erosion.

In Hungary, the Note Institute made loans at very low interest rates; which, given the rapidly increasing price level, are identified by Sargent (1982) as 'simple gifts' from the Note Institute to those fortunate enough to receive loans on such generous terms. He also observes that Poland's Reserve Bank was guilty of making private loans at negative real rates of interest.

As with all the cited episodes, the RBZ also made loans at negative real rates of interest through its subsidized credit scheme for exporters. It also forced the commercial banks to offer loans at negative real rates of interest, by legally requiring any excess at the end of the day to be invested in highly negative yield government securities.

Section VI: Conclusion

In conclusion, we have identified the following key characteristics that are shared between the Zimbabwean experience and other, mostly classical, hyperinflations:

1. Hyperinflations are both preceded and accompanied by large fiscal deficits.
2. Ideological governments can and do use the inflation mechanism to forward their political agendas.
3. Hyperinflations are generally accompanied by inefficient tax systems.
4. When countries that are dependent on foreign aid are cut off from it, the lack of foreign financing can provide the fiscal shock that sparks the hyperinflationary process.
5. Once the process begins, so does flight from the local currency into real assets.
6. The potential for profit during such economic crises creates a class of economic agents whose interest lies in prolonging the hyperinflation.
7. Governments seeking to preserve their inflation tax base generally implement price controls; and no matter how high the consequence of violation, these controls eventually fail in the face of free-market forces.

A number of lessons can be taken from the Zimbabwean experience. Firstly, ideological governments with access to non-autonomous central bank financing have strong incentive to use hyperinflation as a tool. Through its use as a political device, hyperinflations in the past have shown that it is generally the political opposition (and their supporters) who suffer most. The implication, then, is that the independence of the Central Bank is of paramount importance. An independent Central Bank, with the power to resist government demands for domestic finance, can prevent the devastating effect that hyperinflation can have on fixed-income earners; who generally make up the bulk of the middle-class bourgeoisie.

The view of hyperinflation as an ideological tool separates the more modern inflations from those of the past, which have traditionally been associated with wars and civil unrest. As Earl J. Hamilton observed in the late 1970s: "Wars and revolutions without taxation to cover the cost have been the principal causes of hyperinflation in industrial countries in the last two centuries. But in non-industrial nations, particularly in Latin America, the main cause of both inflation and hyperinflation has not been warfare but welfare, or attempted welfare, without taxation to cover the cost" (Hamilton E. J., 1977, p. 18). The attempted welfare of ideological governments can come with devastating consequences when it is insisted upon at any cost.

A second important observation from the Zimbabwean hyperinflation is that large fiscal deficits should be addressed by long-term fiscal reform. This includes the design of taxation systems that allow rapid expansion of the tax base in the event of fiscal shocks. Whilst efficient tax systems are not always politically expedient, the alternative can be much worse. Judging from past experience, efficiency in a taxation system implies that the tax be readily collectible (as is the case in direct taxation systems), and that it be collected timeously. Where the taxation system is inefficient, the fiscal budget remains particularly vulnerable to unexpected budgetary expenditures; particularly if a large fiscal deficit already exists.

The need for fiscal reform in the presence of long-term fiscal deficits has further implications for certain developing countries. Many of these countries have carried their fiscal deficits for a number of years, and have become reliant on foreign financing to fund their excess spending. Such reliance on foreign aid runs the risk of complacency: as it allows governments in power to avoid the necessary (and often unpopular) fiscal reform to correct their fiscal shortfalls. There is perhaps need to question the role that institutions such as the IMF and the World Bank can play in the development of these crises. As in the case of Bolivia, history has shown that withdrawal of foreign aid can be a major contributing factor to the development of hyperinflation; and in the Zimbabwean situation, even the funding of its foreign interest requirement caused severe fiscal strain.

With regard to the hyperinflationary process itself, the Zimbabwean situation has demonstrated that hyperinflation is not without its supporters. White (1959)'s 'growing class of speculators' can be interpreted as the free-market reaction to political interference in the economy. As has been cited in nearly all accounts, this group of economic agents has a direct interest in prolonging the hyperinflation; and has been observed taking an active role in doing so.

In terms of government reaction to the inflationary spiral, the Zimbabwean situation is just another episode to demonstrate the ineffectiveness of price controls. It is practically impossible for a government power to control all the actions of its citizens. The balance of power between ruler and ruled is a social contract that requires the ruler to administer laws that are acceptable to the general populace. When the ruler seeks to administer laws that are effectively in his own interest, as in the case of price controls, the populace will eventually ignore these laws (as history has repeatedly shown).

It is suggested that the public is inherently aware of the ineffectiveness of price controls as a long-term measure. Rather, one should say that the only possible scenario in which price controls can be effective is when they are the short-term accompaniment to long-term, credible, fiscal reform. In such a situation, it is clear that the price controls are intended to ease the pressure on the individuals struggle to keep up with inflation; rather than to preserve the tax base of a money-creationist regime.

In summation, it has been shown in this paper that the Zimbabwean hyperinflation is not an isolated economic phenomenon. Rather, it demonstrates nearly all the general characteristics of a classical hyperinflation: a country, gripped by a growing fiscal deficit, is left susceptible to both internal and external fiscal shocks. The shocks occur before the fiscal deficit can be rectified; and, in this case, they occur as a result of the Zimbabwean government's ideological policies and its decision to send militia into the DRC. This unbudgeted expenditure leaves the fiscal authorities scrambling for a short-term financing solution. Cut off from foreign funds, and having exhausted foreign reserves, the authorities seek to borrow domestically. At the same time, the Reserve Bank is instructed to begin printing money to cover the increased expenditure requirement.

Inflation is already underway at this point. The fiscal authorities struggle to adjust an inefficient tax system; and in the meantime, continue to print money. The public begins to protest against the rising inflation; and investor panic deepens as the public begins to

fear that money creation is no longer a short-term resort. As inflation begins to spiral, the consequent flight to hedge real wealth causes asset-pricing bubbles. A new class of speculator emerges, and inflation gathers headway as it gains supporters.

Struggling under the Keynes-Tanzi effect, the fiscal authorities are forced to print ever-greater quantities of money in order to sustain the real value of seigniorage revenue, by now the only source of fiscal income. At this point, flight from the currency is gathering momentum, and the government steps in to preserve its tax base: implementing price controls and clamping down on informal markets. The power of market forces overwhelm these attempts, and when the controls are eventually lifted, the inflation returns far worse than before. Without drastic measures being undertaken, the economy self-stabilizes by converting into an alternate form of currency; and the inflation ends as the public abandons the use of the old currency.

This scenario has repeated itself, with only small variations, numerous times in the last century. The allure of inflationary finance is felt by all weakened governments; and we are forced to rely on political wisdom as its principal deterrent. Using money creation as a short-term method of financing the deficit need not lead to such dramatic episodes: as can be drawn from the conclusions of Sargent (1982), this method of financing can be appropriate when the public perceives the policy as a short-term solution. However, once money creation has become a long-term policy stance in the public's eye, rational expectations can drive inflation into spin. At this point, only a credible change in policy can stop the spiral.

Along the same lines as conclusions reached by Sargent (1982), this implies two essential measures required for ending hyperinflations: firstly, the creation of an independent central bank that is legally restricted from issuing further credit to the fiscal authorities; and secondly, fiscal policy reform.

In the Zimbabwean situation, stabilization came about without either of these measures. Rather, as in the case of the France Assignat inflation, the Zimbabwean economy self-stabilized by converting all transactions into foreign currency. Despite the Zimbabwean government's attempts to keep the Zimbabwean dollar in circulation, Zimbabwe dollar transactions had virtually disappeared by January 2009. The government eventually ratified the dollarization by shifting tax collection into foreign currency. As it stands, it is still unclear as to when the Zimbabwean economy will have its own currency once more.

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